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AMERICAN

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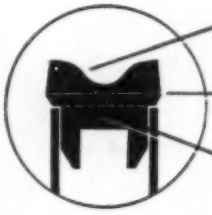

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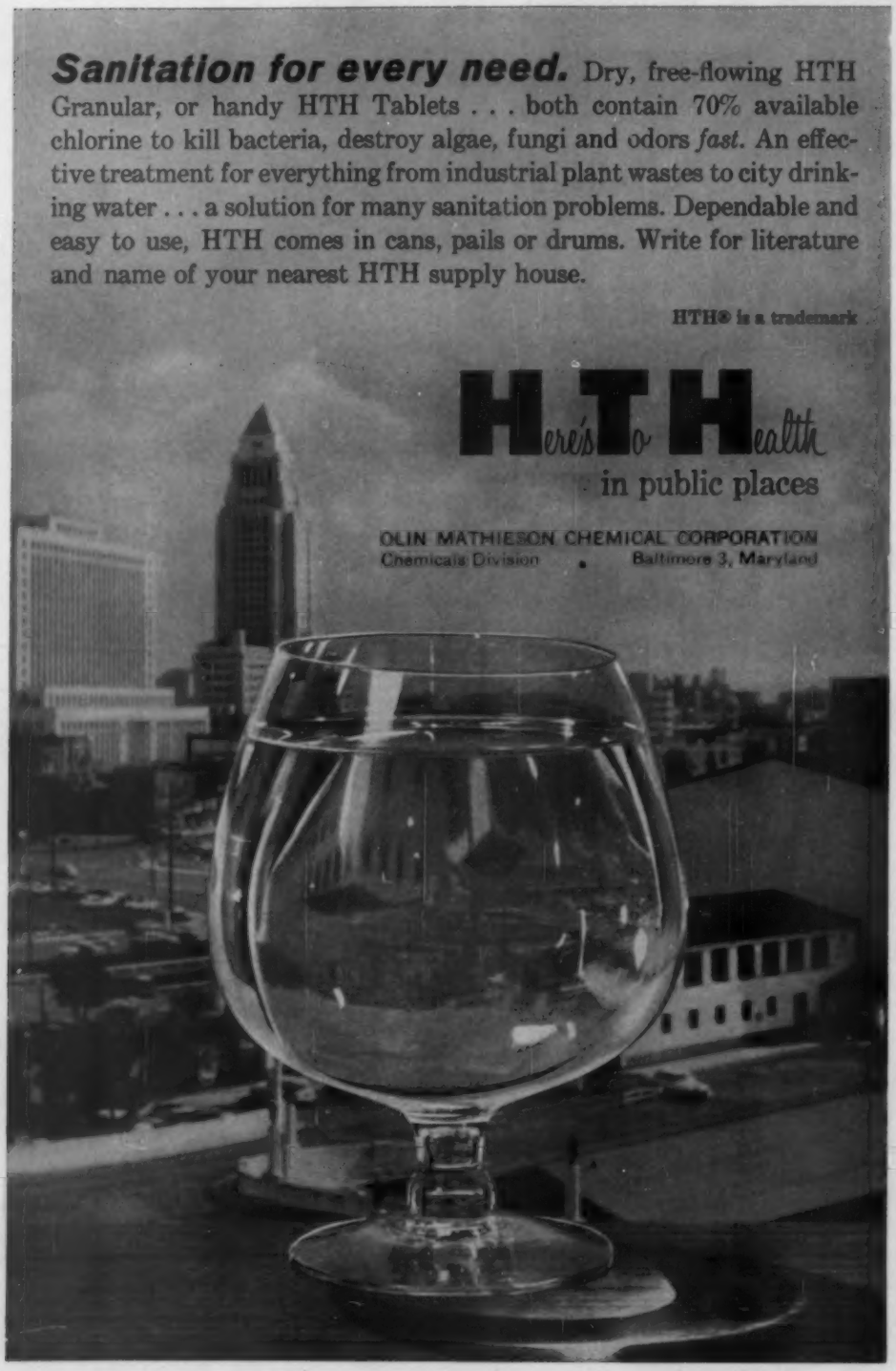
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A.J.P.H., 48:9 (1142-1149), 1958; 24:6 (1112-1119), 1959.

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Blank, H.; Smith, J. G., Jr.; Roth, F. J., Jr., and Zaias, N.: J.A.M.A. 171:2168 (Dec. 19) 1959.

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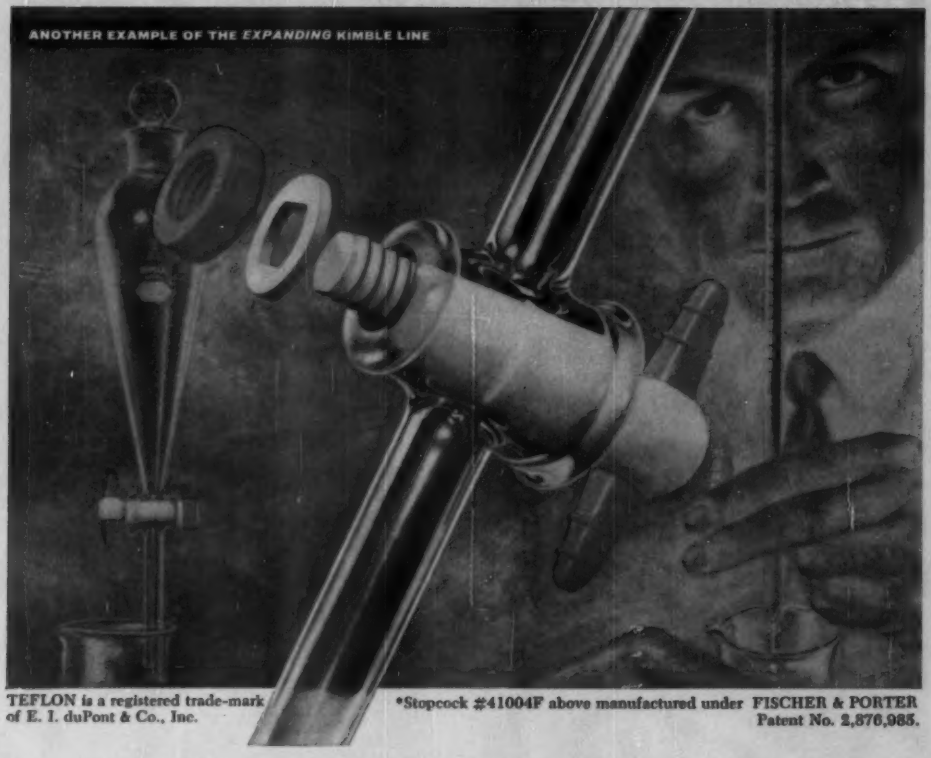

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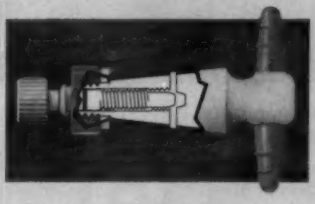

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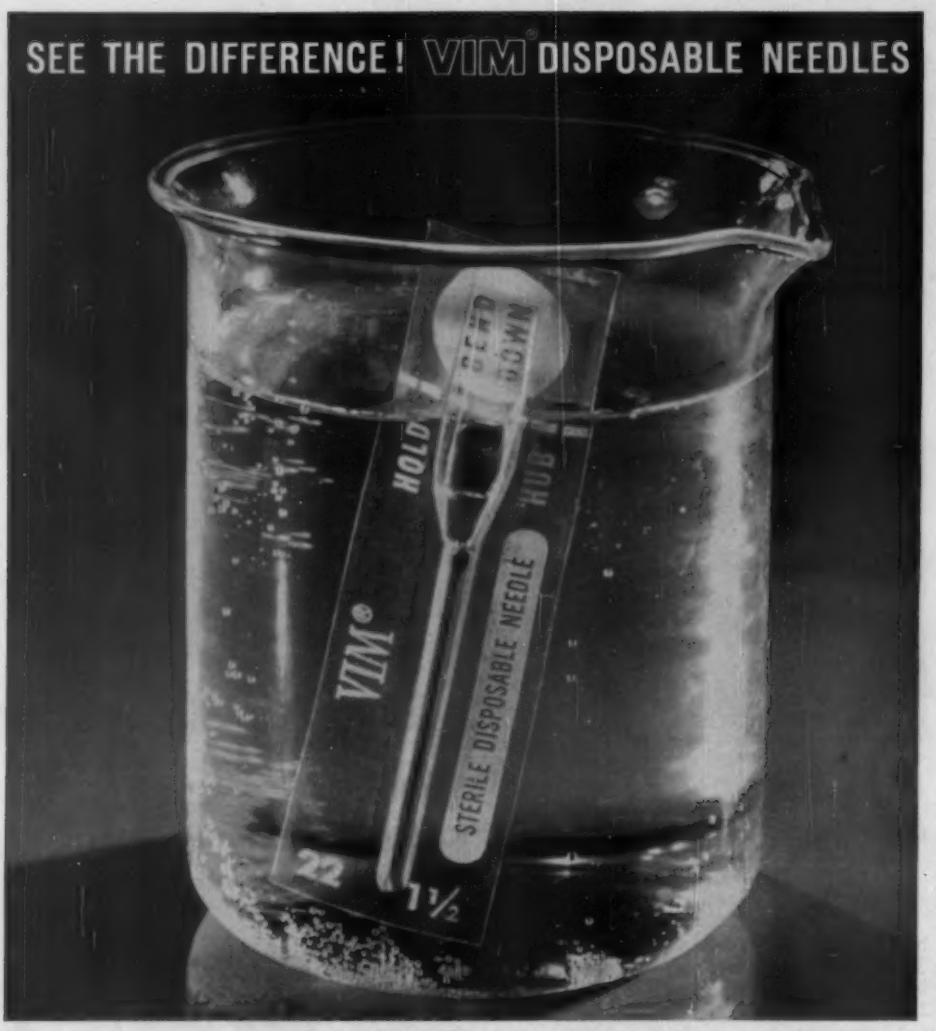

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POVAN SUSPENSION is administered orally to a child or adult in a single dose, equivalent to 5 mg. pyrvinium base per Kg. of body weight. For convenience, one 5-cc. teaspoonful per 22 pounds (10 Kg.) of body weight may be used. (See literature for detailed dosage schedule.)

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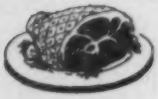

Since many people cling to the false idea that meat appreciably increases body temperature, they serve meals under the banner of "special summer diets" lacking adequate nutrition.

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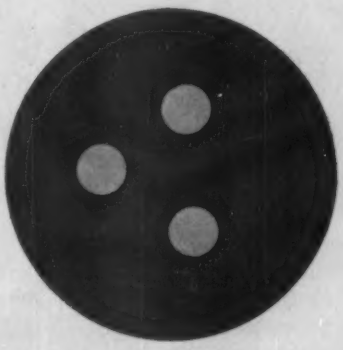

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Chronic Appendicitis?
Rheumatoid Arthritis? Regional Enteritis?

A DISEASE that is frequently overlooked in solving diagnostic quandaries is amebiasis. Its symptoms are varied and contradictory, and diagnosis is extremely difficult. In one study, 56% of the cases would have been overlooked if the routine three stool specimens had been relied on.[1]

Another study found 96% of a group of 150 patients with rheumatoid arthritis were infected by *E. histolytica*. In 15 of these subjects, nine stool specimens were required to establish the diagnosis.[2]

Webster discovered amebic infection in 147 cases with prior diagnoses of spastic colon, psychoneurosis, gall bladder disease, nervous indigestion, chronic appendicitis, and other diseases. Duration of symptoms varied from one week to over 30 years. In some cases, it took as many as six stool specimens to establish the diagnosis of amebiasis.[3]

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TABLETS

specific for intestinal amebiasis

Supplied in bottles of 40 tablets, each tablet containing 50 mg. of glaucarubin.

Write for descriptive literature, bibliography, and dosage schedules.

1. Cook, J.E., Briggs, G.W., and Hindley, F.W.: Chronic Amebiasis and the Need for a Diagnostic Profile, Am. Pract. and Dig. of Treat. *6*:1821 (Dec., 1955).

2. Rinehart, R.E., and Marcus, H.: Incidence of Amebiasis in Healthy Individuals, Clinic Patients and Those with Rheumatoid Arthritis, Northwest Med., *54*:708 (July, 1955).

3. Webster, B.H.: Amebiasis, a Disease of Multiple Manifestations, Am. Pract. and Dig. of Treat. *9*:897 (June, 1958).

*U.S. Pat. No. 2,864,745

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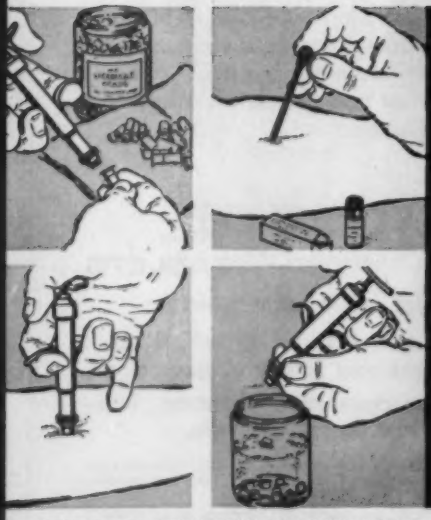

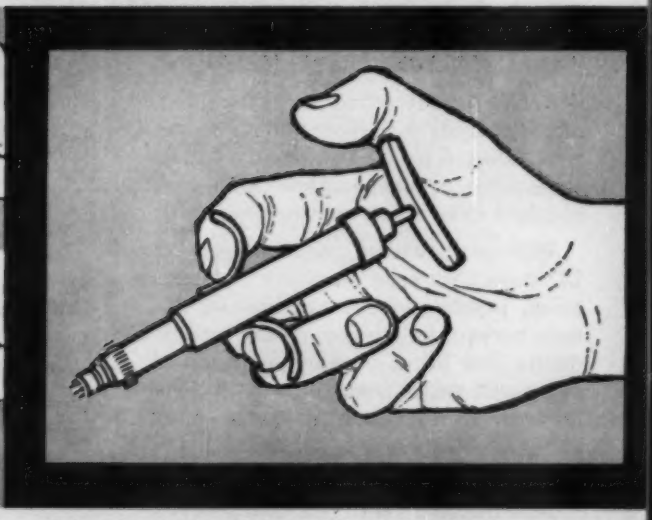

Procedure for STERNEEDLE TUBERCULIN TEST:

Top, left... Slip needle cartridge on gun with plastic applicator. Remove applicator.

Top, right... Place a drop of tuberculin PPD on cleansed forearm.

Bottom, left... Place gun on drop of tuberculin PPD. Pressure and release of handle automatically triggers and retracts the needles.

Bottom, right: Disposable needle cartridges and applicators may be washed and sterilized for reuse, if desired.

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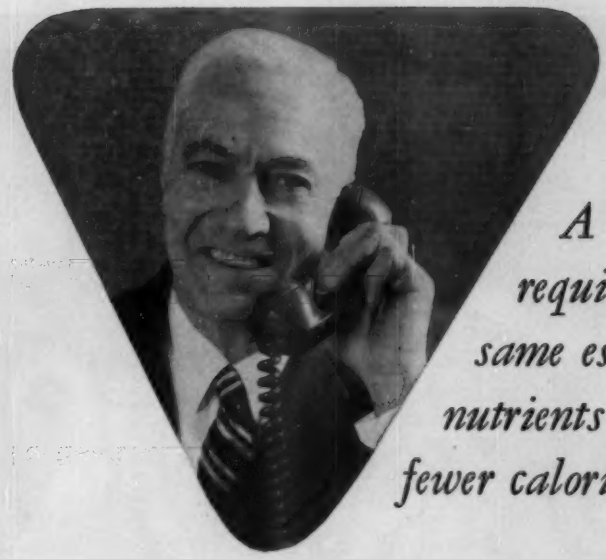

A man of 65 requires same essential nutrients but fewer calories

Due in part to diminished physical activities, the recommended daily dietary allowances for "Men, 65 years," are lower in calories but similar in essential nutrients recommended for younger age groups. This reduction in calories is easily accomplished by a moderate reduction in dietary fat. *A basic cereal and milk breakfast* as shown in the table below merits consideration because *its moderate low-fat content* of 10.9 gm. provides 20 per cent of the total calories, yet it provides for this age group and for most others about one-fourth of the recommended daily dietary allowances of protein, important B vitamins, and essential minerals. The Iowa Breakfast Studies on Men Past 60 Years of Age demonstrated that *a well-balanced, moderate low-fat morning meal was a sound one for the maintenance of health and well-being during the morning hours.*

Recommended Daily Dietary Allowances and the Nutritional Contribution of a Basic Cereal and Milk Moderate Low-Fat Breakfast*

Menu: Orange Juice—4 oz.;
Cereal, dry weight—1 oz.;
Whole Milk—4 oz.; Sugar—1 teaspoon;
Toast (white, enriched)—2 slices;
Butter—5 gm. (about 1 teaspoon);
Nonfat Milk—8 oz.

Nutrients	Calories	Protein	Calcium	Iron	Vitamin A	Thiamine	Riboflavin	Niacin equiv.	Ascorbic Acid
Totals supplied by Basic Breakfast	503	20.9 gm.	0.532 gm.	2.7 mg.	588 I.U.	0.46 mg.	0.80 mg.	7.36 mg.	65.5 mg.
Recommended Dietary Allowances—Men, 65 Years (70 kg.—154 lb.)	2550	70 gm.	0.8 gm.	10 mg.	5000 I.U.	1.3 mg.	1.8 mg.	18 mg.	75 mg.
Percentage Contributed by Basic Breakfast	19.7%	29.8%	66.5%	27.0%	11.8%	35.4%	44.4%	40.9%	87.3%

Cereal Institute, Inc.: Breakfast Source Book. Chicago: Cereal Institute, Inc., 1959.

Food & Nutrition Bd.: Recommended Dietary Allowances, Revised 1958. Natl. Acad. Sci.—Natl. Research Council Publication 589, 1958.

Watt, B. K., and Merrill, A. L.: Composition of Foods—Raw, Processed, Prepared. U.S.D.A. Agriculture Handbook No. 8, 1950.

**The allowance levels are intended to cover individual variations among most normal persons as they live in the United States under usual environmental stresses. Calorie allowances apply to individuals usually engaged in moderate physical activity. For office workers or others in sedentary occupations they are excessive. Adjustments must be made for variations in body size, age, physical activity, and environmental temperature.*

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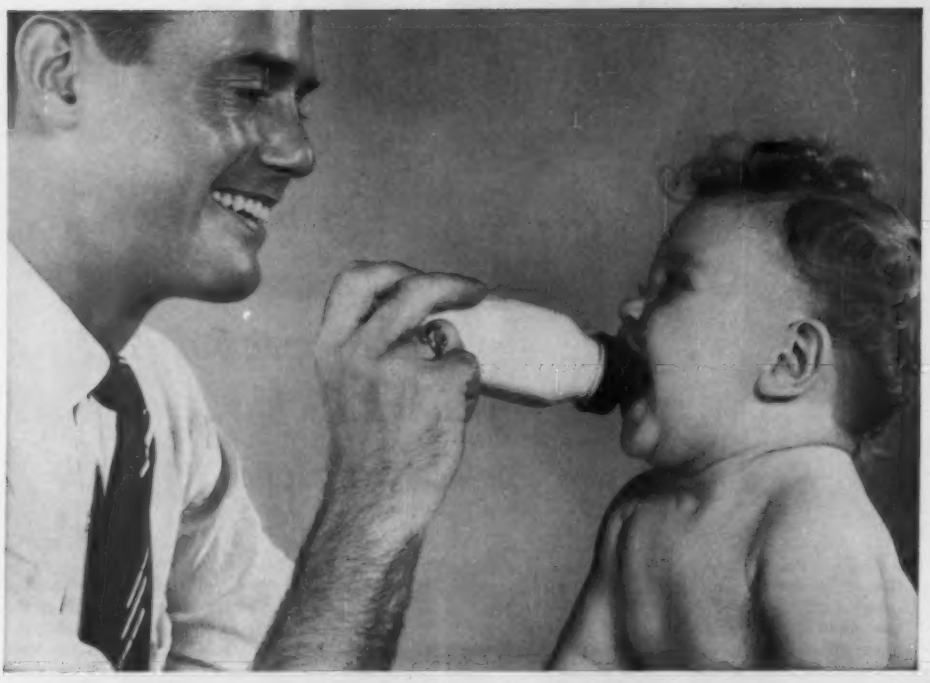

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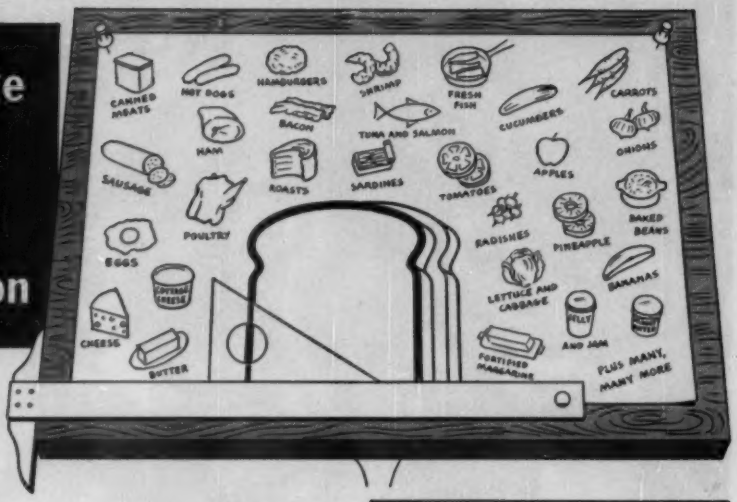

A leading designer once called sandwiches the ultimate in food packaging—since you eat not only the contents but the "package" made of bread as well.

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Protein	18 Gm.	58 Gm.	31%
Calcium	312.5 Mg.	800 Mg.	39%
Vitamin A	685 I.U.	5,000 I.U.	14%
Iron	2.35 Mg.	12 Mg.	20%
Thiamine	0.43 Mg.	1.2 Mg.	36%
Riboflavin	0.24 Mg.	1.5 Mg.	16%
Niacin	2.55 Mg.	17 Mg.	15%
Food Energy	363 Cal.	2,300 Cal.	16%

*Based on tables in the Yearbook of Agriculture 1959, U.S.D.A., Washington, D.C.
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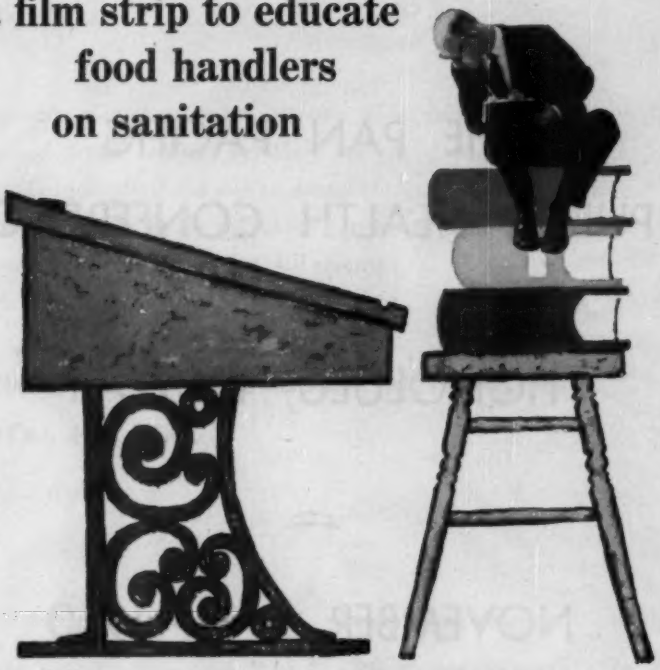

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Journal of Public Health

It is recognized that there is an intricate, close connection between diet, nutrition, and dental health. Yet there are still gaps in knowledge. The relation of nutrition and diet to dental caries and periodontal disease are considered in the following paper, and the author considers what we know and what still remains to be discovered.

NUTRITION, DIET, AND CALCIUM METABOLISM IN DENTAL HEALTH

Erling Johansen, D.M.D., Ph.D.

IN VIEW of present knowledge the relationship between nutrition, diet, and dental health may be characterized as both close and intricate. Close because the etiological factors in dental disease are tied to dietary and nutritional considerations, and intricate because the field of general body metabolism as well as aspects of bacterial metabolism enter the picture. This complexity precludes consideration of all aspects of the problem in this presentation. It is therefore necessary to consider certain aspects of nutrition and diet as they pertain to certain aspects of dental health. Since the problem of dental caries and periodontal disease are of greatest practical significance in the dental health field the discussion will center around them.

General Considerations

Before considering specific studies bearing on the subject it might be advantageous to review the structures concerned, and from our knowledge of general body metabolism indicate how the nutritional and dietary factors in a general way might be related to their development and maintenance. A diagrammatic representation of this relationship is shown in Figure 1. A distinction has been made between a systemic nutritional effect and a local dietary effect. The systemic nutritional effect is mediated through the general circulation and is dependent on digestion, absorption, and general metabolism. The local effect on the other hand is a localized, intraoral chemical or physical

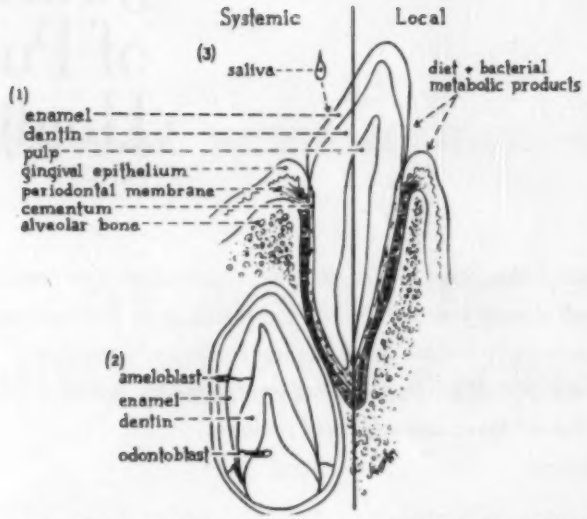

Figure 1—Nutrition, Diet, and Calcium Metabolism in Dental Health

action of the diet and bacterial breakdown products of diet on the external surfaces of the teeth, and the adjacent soft tissues.

Systemic—For the teeth the systemic nutritional factor is of prime importance during the period of tooth development only. In contrast, the periodontium is continuously under the influence of systemic factors from the time of eruption of the first tooth, throughout the rest of the individual's life. Since we are thus concerned with cellular metabolism, protein synthesis, and other biochemical processes like calcification it is readily understood that nutritional disturbances will influence the dental tissues. For instance, disturbances in protein metabolism might influence matrix formation of both enamel and dentin in the developing tooth as well as formation of the intercellular matrix of the fibrous periodontal membrane, alveolar bone, and cementum. Factors influencing fat and carbohydrate metabolism would be expected to influence the vital processes of the cells of these tissues. The effects of the specific vitamins would be dependent on the relative sensitivity of the particular tissue cells to the chemical in question. For example, vitamin A deficiency or excess would be expected to influence enamel matrix formation as well as normal maintenance of the oral epithelium of the periodontal tissue. Vitamin C would enter the picture in relation to collagen matrix formation of dentin, cementum, periodontal membrane, and alveolar bone. Vitamin B complex deficiency might be expected to interfere with many metabolic functions of the various cells of all these tissues.

Disturbances in calcium and phosphorus absorption and metabolism including vitamin D deficiency or excess could influence the calcification of enamel, dentin, cementum, and alveolar bone.

Deficiency or excess of certain trace elements might influence the composition of the mineral phase of the calcified tissues as well as affect individual cells through the role of coenzymes.

With completion of tooth development and subsequent eruption of the tooth into the oral cavity these systemic influences assume a subordinate role, in the form of an ion exchange phenomenon mediated through the salivary secretion on the external tooth surfaces and through the tissue fluid of the pulp on the internal aspects of the tooth.

Local—The local dietary effects are exerted directly on the tooth surfaces and the gingival tissues as illustrated in the right half of the diagram. Degradation products of dietary carbohydrates and bacterial enzymes located on the tooth surfaces play important roles in the development of carious lesions. In the pathogenesis of periodontal disease, however, the role of dietary factors and bacteria is not as well understood.

Effect on Dental Health

Against this background we may now consider specific studies dealing with nutritional and dietary factors in periodontal disease and dental caries. Both human and animal studies will be quoted, realizing fully that data obtained with animals may not be directly applicable to man.

Periodontitis

Let us first consider periodontitis, which is the most common form of periodontal disease. In the early stages of this condition we are concerned with an inflammation of the gingivae which, if allowed to progress, will extend into the periodontal membrane, stimulate alveolar bone resorption, cause pocket formation, and ultimately result in tooth loss. The disease process is thus basically the result of a progressive inflammatory response.

Local Factors—The true nature of the agents eliciting the response is not known. It is thought, however, that bacterial metabolic products, like toxins[1] and bacterial enzymes, play an important role.[2] Physical irritation from calculus and food impaction are among other factors usually considered.[3] The role played by the diet in influencing these factors at the local level is poorly understood. Since the diet probably serves as a source of nutrients for the microorganisms, diet composition might be of some importance in determining the flora. The physical nature of the diet also appears to be of importance. In our studies with hamsters[4] soft, powdered diets have been found to be conducive to periodontal disease, while hard, more fibrous diets appear to cleanse the teeth and produce only small gingival deposits. King[5] has also noted a reduction in calculus formation in ferrets receiving a fibrous diet. That the act of mastication is important in reducing calculus accumulation is also seen clinically in human beings. If a patient for reasons of pain consistently uses only one side of the mouth in mastication, massive deposits may develop on the inactive side. Vigorous chewing of fibrous foods is further thought to provide physiological stimulation to all components of the periodontium.

Systemic Factors—Since periodontitis is an inflammatory response, it is unlikely that nutritional systemic disturbances as such will elicit the reaction. Rather, nutritional deficiencies must be thought of as altering the body's response to the noxious substances penetrating from the oral cavity. This might be accomplished by impairment of normal cellular metabolism or interference in any aspect of the inflammatory response including tissue repair.

True assessment of the importance of the systemic factors at the biochemical level is extremely difficult and specific information pertaining to the periodontium is practically absent.[6] Observations on human beings are often confusing because one may be dealing with subclinical chronic deficiencies. In acute deficiencies of various types pro-

duced in animals numerous microscopic observations have been made. In protein deficiency degeneration of the connective tissue of the gingiva and periodontal membrane has been observed, associated with osteoporosis of the alveolar bone and retardation of cementum formation.[7] The effect of local irritants is accentuated under these conditions.[8]

No information is available on the relationship between dietary fats and periodontal disease. In faulty carbohydrate metabolism as encountered in diabetes mellitus, the inflammatory response in gingivitis has been reported as more severe than in nondiabetic patients.[9]

In vitamin A deficiency hyperplasia and hyperkeratinization of the gingival epithelium have been observed.[10] In vitamin B complex deficiency nonspecific gingivitis has been reported by Afonsky.[11] Becks, et al.,[12] found extensive destruction of the periodontium in dogs deficient in nicotinic acid. Acute vitamin C deficiency in the guinea pig is accompanied by edema, hermorrhage, and collagen changes in the periodontal membrane and osteoporotic changes in the alveolar bone. Under these conditions the initiation of gingivitis appears to be related to local factors.[13,14] Clinical studies in human beings on the relationship between the blood level of ascorbic acid and gingivitis have produced conflicting results.[3] Disturbance in alveolar bone structure has also been reported in animals maintained on vitamin D and calcium deficient diets.[15] The administration of 40 ppm of fluoride in the drinking water of hamsters maintained on cariogenic diets was associated with diminished alveolar bone loss as compared with control animals.[16]

This brief review of periodontitis with special reference to nutrition and diet has clearly established how inadequate our present knowledge really is. A great deal of research work is waiting to be performed particularly on the biochemical aspects of the problem.

Dental Caries

Let us now turn to dental caries. Here we are concerned with a localized, slow, progressive destruction of enamel, dentin, and cementum originating on the external tooth surfaces and involving both the inorganic and organic phases of the tissues. The following factors are known to be of importance in the caries process: the oral bacteria, the saliva, the tooth, and food substances retained in the oral cavity. Of these factors further consideration of the effect of nutrition on the tooth and the effect of food substances retained in the oral cavity is of particular relevance. Before considering these, it should be pointed out, however, that bacteria are essential for caries to develop. This has been proved by Orland, et al.,[17] in germ-free animal studies. A diet conducive to caries development in rats living under ordinary laboratory conditions has been proved noncariogenic to germ-free rats.

With regard to saliva, it is known that its presence in the oral cavity greatly reduces the amount of caries as compared with similarly maintained desalivated animals.[18] However, the relationship between nutrition and diet and salivary buffering capacity, ionic strength, pH, organic content, and so on, and in turn the relation of these factors to caries initiation and progression need further clarification.

Systemic Nutritional Influence

The composition of the tooth itself might be a very important factor in determining caries resistance or susceptibility. Again, little information is available on this subject. The studies of Isaac, et al., have demonstrated that there is a relationship between fluoride content of unerupted teeth, and fluoride content of drinking water.[19] Teeth developed with fluoridated water are more

caries resistant than teeth developed on nonfluoridated water[20] and enamel from such teeth is less soluble in acids.[21] The work of Sobel[22] indicates that the Ca/P ratio of the diet during the period of tooth calcification may be important. In studies performed with rats it was found that with low dietary phosphate in relation to calcium, enamel and dentin with high carbonate:phosphate ratio resulted. Such teeth were found to be more caries susceptible than teeth with a lower carbonate:phosphate ratio.[23] Haldi and Wynn[24] were, however, unable to detect such chemical changes with diets containing higher amounts of calcium and phosphorus, but with different Ca:P ratios. From animal studies it has further been postulated that teeth developed on natural diets are more resistant to caries than teeth developed on highly purified diets.[25] The mechanism involved in this relationship is not well understood, but a systemic effect of refined dietary carbohydrates as well as the operation of unrecognized factors have been considered.[25,26] An adequate intake of vitamin D in growing children appears beneficial for dental caries reduction.[27] Practically no information is available on other nutritional factors and their importance in influencing the tooth toward resistance or susceptibility to dental caries.

Local Dietary Influence

Finally, we will consider the local effect of the diet in the carious process. Tube feeding studies in rats have provided scientific proof for the previous assumption that the food must be in contact with the teeth for caries to develop. A diet cariogenic to rats consuming it ad libitum was found to be noncariogenic when administered by stomach tube.[28] Of the individual dietary components, carbohydrates appear to be essential for dental caries to develop. Nonetheless, the relationship between the two is not simple. In animal studies starch is less cariogenic than sucrose[29] and increasing amounts of sucrose in the diet will accelerate both the rate of initiation and the progression of caries.[4] In human beings the importance of sugar in caries development has been well demonstrated in the Vipeholm study.[30] In this fundamental investigation inmates of a state hospital were allowed sugar supplements to a basic diet over a four-year period. The conclusion was reached that sucrose bears an etiological relationship to dental caries, but that the manner in which the sugar is consumed is also important. Since this general topic is considered in the following paper by Weiss and Trithart,* suffice it to say that sugar in fluid form is less harmful than in sticky, solid form.

After extensive studies of the causes for reduction in dental caries observed in European countries during the last war, Toverud[31] came to this conclusion:

> "The change in mouth environment brought about by the drastic reduction in consumption of sugar and sugar products during the war years has to be considered the main cause of the reduced caries rate. Particular stress should be put on the disappearance of all kinds of candy and sugar-sweetened cookies and cakes usually taken between meals. More liberal use of root vegetables, which acted as a tooth cleanser, no doubt, also played a role. The coarse flour, too, may have had some effect.
>
> "An increased tooth resistance seems to have acted as a second factor. This increased resistance may be due chiefly to more favorable conditions for the earliest posteruptive maturation of the enamel surface.
>
> "The postwar increase in the caries rate must be ascribed chiefly to gradual changes towards prewar consumption of foods that tend to leave carbohydrate deposits on the teeth, and, particularly, to the frequent eating of such foods."

Intraoral pH measurements in bacterial plaques on tooth surfaces indicate

* Weiss, R. L., and Trithart, A. H. Between-Meal Eating Habits and Dental Caries Experience in Preschool Children. A.J.P.H. 50, 8:1097-1104 (Aug.), 1960.

Table 1—The Effect of $CaHPO_4$ and Fluoride on Rat Caries

	Evaluation of Dental Caries				
	No. of Rats ♂	No. of Carious Molars per Rat	C.R.†	No. of Carious Lesions per Rat	C.R.†
Control diet*	14	11.6±0.36		60±5.2	
Control+2% $CaHPO_4$	12	11.2±0.39	0.9	41±3.8	2.7
Control+10ppm F	9	10.4±0.37	2.3	36±4.0	3.6
Control+25ppm F	12	7.0±0.95	4.6	16±3.9	6.8
Control+2% $CaHPO_4$ +10ppm F	11	9.1±0.67	3.3	26±3.2	5.6
Control+2% $CaHPO_4$ +25ppm F	10	6.5±0.62	7.3	14±2.1	8.3

* Diet Composition: 30 per cent skimmed milk, 20 per cent sugar, 20 per cent whole wheat flour, 20 per cent starch, 5 per cent sodium chloride, and 5 per cent alfalfa. In experimental diets 2 per cent $CaHPO_4$ substituted for 2 per cent NaCl.

† C.R. = Critical Ratio. A figure greater than 2.0 indicates statistical significance.

that organic acids are rapidly formed from ingested carbohydrates.[32] The acids in turn decalcify the tissues and destruction of the matrix follows as a later consequence,[33,34] Dietary factors other than carbohydrates might influence the process through local action. Fluoride in the drinking water may influence enzymatic reactions or strengthen the tooth by surface accumulation as shown by Jenkins and Speirs[35] and Brudevold.[36] The administration of a natural trace element sea salt mixture in the diet of rats, however, tended to increase caries without markedly influencing the chemical composition of the teeth.[37]

In animal studies it has further been shown that an increase in the protein[38] and fat[39] content of a cariogenic diet will be accompanied by a reduction in dental caries. While the latter findings are of interest in understanding the mechanism of dental caries, they appear to be of little practical significance at this time in human caries control except in special cases. It would seem safe to assume that carbohydrates, referring particularly to sugar, will continue to constitute an important part of our diet. Further caries prevention beyond that provided through water fluoridation and topical fluoride application and good oral hygiene must thus most likely be accomplished in the presence of sugar.

Recent studies indicate that calcium and phosphate compounds may be of promise. Stralfors[40] noticed marked reduction in hamster caries with 2 per cent and 5 per cent $CaHPO_4$ incorporated into cariogenic diets. Trisodium phosphate ($Na_3P_3O_6$) was also effective at the 5 per cent level. McClure[41] has found disodium hydrogen phosphate (Na_2HPO_4) to be very effective and Nizel and Harris[42] obtained promising results with metaphosphoric acid supplements to hamster diets. In our own laboratories[43] we have noted statistically significant reductions in rat caries with $CaHPO_4$. The simultaneous administration of $CaHPO_4$ and sodium fluoride at the 10 and 25 ppm level seem to indicate an additive beneficial effect (Table 1).

The mechanism involved in caries reduction by calcium phosphate compounds is at present a subject of speculation. The observation by McClure[41] that some cariostatic effect of phosphates occurred with the compound administered by stomach tube would indicate that the beneficial influence may be realized through the systemic route. However, other data[41,43] have been interpreted to mean that the beneficial effect is related to a local phenomenon in the oral cavity. It is thought that the presence of calcium phosphate compound in the area of acid production would tend to neutralize the latter before tooth surface decalcification could occur. However, additional work is needed to clarify this question.

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National Conference on Physicians and Schools

The time and place of the 1961 National Conference on Physicians and Schools will be shifted from its customary October date in suburban Highland Park to March 9-11, in Chicago's Sheraton Towers Hotel. The conferences are held to foster interprofessional agreement on ways and means to improve health and fitness programs for school-age youth.

The Eighth National Conference was advanced to this date so that it could follow immediately after the half-century birthday celebration of the Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, Wednesday, March 8. As in the past, representatives of state departments of health, state departments of education, and state medical socieies will be invited to send delegates to the conference. National voluntary agencies with a major interest in health problems of school-age children are also represented.

What is the relationship between caries experience of school children and the frequency of eating between meals? What kinds of items are eaten between meals and how can this be studied? This study endeavors to provide some of the answers and to show how they can be used meaningfully in dental health education.

BETWEEN-MEAL EATING HABITS AND DENTAL CARIES EXPERIENCE IN PRESCHOOL CHILDREN

Robert L. Weiss, D.D.S., M.P.H., F.A.P.H.A., and Albert H. Trithart, D.D.S., M.P.H., F.A.P.H.A.

BEGINNING with the work of Miller[1] in 1890 and continuing to the present time, much research has been conducted which implicates refined carbohydrate in the etiology of dental caries, but the exact role of refined carbohydrate in the process which produces dental caries has been difficult to define. These years of study which reflect various approaches in the dental and nutritional fields were highlighted at various intervals by several distinct changes in thought. At times, newer concepts have come into direct conflict with those that had become widely accepted just before the appearance of new data. However, as new evidence was revealed most conflicts were resolved and the current concept of the carbohydrate-caries relationship allows sufficient latitude to encompass most of the ideas that appeared to be firmly established at various times in the past. Each has contributed its measure to the evolution of present-day thought regarding the carbohydrate-caries relationship.

It is apparent that another new phase of study is emerging. The general direction of this continuing search for more knowledge about the carbohydrate-caries relationship is guided by two important concepts currently gaining increasing support from recent studies In brief, these concepts are:

1. The frequency of eating carbohydrates, especially sugar containing foods, is an important factor in determining cariogenic activity.
2. The consistency of a given foodstuff is a most important factor in determining its cariogenic potential.

It is important to note that these concepts emphasize the importance of the physical character of foods and the number of times consumed rather than the total quantity of sugar or carbohydrate consumed. These concepts are based on significant findings relating to the effect of sugar on the pH within the dental plaque as reported by Stephan,[2] and to oral sugar clearance as reported by Lundqvist.[3] Oral sugar clearance is defined by Lundqvist as the sum of the time periods in one day during which the saliva contains sugar. Frequent eating, then, would tend to increase this total time period.

The study described in this report relates primarily to the first of the concepts—the frequency of eating. More specifically, the study was limited to the frequency of eating certain between-

meal items. Justification for excluding mealtimes from the frequency determination is based on certain assumptions which, from a practical point of view, should not affect the findings. Most people in this country customarily consume three meals each day and the probability, as shown by studies such as that of McDonald and Zita,[4] is very high that each of these meals will include substantial amounts of refined carbohydrate. Therefore, a frequency of three exposures to refined carbohydrate each day was considered to be constant and the observations made were limited to the frequency of eating between meals —especially items of high sugar content or those of a high degree of adhesiveness.

The purposes of the study are threefold:

1. To devise a practical method of determining the frequency of eating between meals and thereby to assess the general between-meal eating patterns of children.
2. To determine what types of between-meal items are most frequently eaten.
3. To determine whether a relationship between the total frequency of eating various between-meal items, composed primarily of refined carbohydrates in various combinations, and caries experience could be demonstrated in a population group.

The West Tennessee region offered a unique opportunity for conducting the study. Each spring the local health departments conduct preschool health conferences which include a physical examination, a dental inspection, and parent and child guidance relating to the health needs of each child. The dental staff of the regional office participates in these conferences and routinely inspects more than 1,000 preschoolers each year. In the spring of 1956, the dental staff included the dietary study described in this report in addition to the routine dental inspections conducted as part of the preschool conferences.

The study group was composed of 783 children and encompassed an age range of 62-78 months. The mean age was 69.4 months, or approximately five and three-fourth years. Thirteen counties were represented. Twenty-eight per cent of the group lived in very small towns and the other 72 per cent were rural children. In this discussion, rural refers to those children living outside the geographic limits of these communities; 52 per cent were males.

The Method

In order to achieve the purposes of the study, three basic determinations were made: The types of between-meal items consumed, the number of times during a given time interval such items were consumed, and a quantitative expression of past caries experience.

A list of food items was prepared which was known to represent practically all the types of between-meal items consumed by the children to be studied. About half the items can be classified strictly as confections. The other half was composed primarily of common food items or combinations of various items such as graham crackers, pastries, bread and sweet spreads, or peanut butter. Each parent was questioned about which items in the list the child had eaten and also how many times he had eaten each item during the previous day.

In view of the large number of children in the study group, the 24-hour recall was deemed to be the method of choice. Since the primary objective of the study called for a method of assessing only the general pattern of between-meal eating, it was not intended that the cariogenicity of any given type of food item be determined or that a relationship between specific types of between-meal items and dental caries experiences be established. Confidence in selecting the 24-hour recall was enhanced by the findings of Chalmers-Clayton-Gates, et al.,[5] who reported that a dietary record need consist of only one

day when characterizing the dietary intake of a group if a large number of subjects are included. Therefore, a margin of safety existed. It was obvious that the method selected for this study would not demand the sensitivity required for recording in great detail the total dietary intake of a group.

The caries experience was expressed quantitatively by using the def (decayed, indicated for extraction and filled teeth) determination, an index frequently employed to depict caries experience in the primary dentition. Missing primary molars were added to the total def score, the sum representing the total past caries experience of the child. Inclusion of the extracted primary molars in the final score appeared justified since the loss of primary molars in this age group can be attributed primarily to caries.

An alternate choice for determining caries experience might have been based on caries incidence rather than on caries prevalence. However, it also appeared that the method need not exhibit a high degree of sensitivity for a gross determination of caries experience beyond the point of demonstrating a trend or pattern.

Figure 1 illustrates the general format of the survey form, the type of face

RECORD OF ITEMS CONSUMED BETWEEN MEALS AND CARIES EXPERIENCE

__ CANDIES
__ GUMS
__ SOFT DRINKS
__ FRUIT ADES
__ KOOLADE
__ ICE CREAMS
__ SHERBETS
__ POPCICLES
__ PASTERIES
__ GRAHAM CRACKERS
__ PUDDINGS, JELLO
__ CHOCOLATE MILK
__ COCOA
__ BREAD & SWEET SPREADS
__ BREAD & PEANUT BUTTER
__ DRIED FRUITS
__ OTHER (SPECIFY)
_____
_____

____ TOTAL FREQUENCY

NAME _____

DATE _____

COMMUNITY _____

BIRTHDATE _____

FLUORIDATED WATER ____

MALE ____ FEMALE ____

RURAL ____ TOWN ____

def ____ PRIMARY MOLARS EXTRACTED ____

DMF ____ PERMANENT MOLARS PRESENT ____

REMARKS

Figure 1—Survey Form

data recorded, and the specific types of between-meal items included.

Most Popular Between-Meal Items

Of the five most popular between-meal items consumed, four can be classified strictly as commercial confections. In descending order of popularity, these items were gum, candies, soft drinks, and ice cream. The fifth item, more popular than ice cream and more often prepared in the home than the four types mentioned previously, is represented by the pastry group—including items such as cookies, pie, cake, and graham crackers.

Gum was consumed by approximately one out of every three children the day previous to the health conference. This was true of candy to a slightly lesser degree. Approximately one out of every four children consumed soft drinks, a similar ratio applies for items in the pastry category. One out of five consumed ice cream; one out of six, various combinations of bread, crackers, sweet spreads, and peanut butter. The balance of the items—including puddings, chocolate milk, dried fruits, popsicles, and sweetened noncarbonated beverages of various kinds—were much less popular. The exact percentages relating to the selection of various types of between-meal items are shown in Table 1.

The availability of the various types of between-meal items appears to be universal since no substantial differences were detected between subgroups, that is, between male and female and between town and rural children. There appeared to be little difference in the type of between-meal items selected by boys and girls. The largest difference, 6 per cent more boys than girls, occurred in the consumption of soft drinks. Also, relatively small differences were observed in the town and rural children, 7 per cent more town than rural children consumed soft drinks; 11 per cent more town than rural children consumed items in the pastry group.

Table 1—Types of Between-Meal Items Consumed, West Tennessee, 1956

Items	Children Consuming Specified Items	
	Number	Per cent
Gum	297	35.48
Candy	271	32.50
Pastries*	220	26.28
Soft Drinks	218	26.05
Ice Cream	161	19.24
Bread, Crackers†	126	15.05
Others‡	94	11.23

* Includes items such as cookies, graham crackers, pies and cakes.
† Includes various combinations of bread, crackers, sweet spreads and peanut butter.
‡ Includes puddings, chocolate milk, dried fruits, popsicles and ades of various kinds.

Frequency and Caries Experience

The average frequency of eating between meals and the average def score for the total children studied were computed to depict the general character of the study group. The average number of between-meal items of high sugar content or high degree of adhesiveness consumed was 1.75 between-meal items per day. A similar average was computed for each subgroup; that is, for boys and girls and for rural and town children. As shown in Table 2, the frequencies for each subgroup were practically the same as the frequency of eating these kinds of snacks between meals for the group as a whole. More specifically, no important differences were shown between the total group of children, the boys, the girls, rural children, or children living in towns.

Computations of the average number of def teeth presented an identical picture. The number of def teeth for the total group studied was 5.88 per child. Again, as was true of the average frequencies of eating such items between

meals, practically no difference was noted between the def average of the total group and that of each of its components.

In addition to characterizing the study group, these determinations serve as an internal check on the basic premise that prompted the study. The averages for the total group of children and the various subgroups should provide the first clue about the existence of a positive relationship between caries experience and the frequency of eating certain cariogenic items between meals. In other words, if the average frequencies of eating between meals in the subgroups were found to be similar, the corresponding average def scores should also be similar. Or, if any of the average frequencies of eating between meals in the subgroups differed, a difference should be observed also in the corresponding def figure. In either instance, such an occurrence would add credence to the existence of a positive relationship between the frequency of eating between meals and caries. As shown in Table 2, the striking similarities between the various frequencies of eating between meals and their corresponding def averages appear to substantiate this belief.

It was hoped that the method devised for this study would be sensitive enough to detect any definite trend relating to caries experience and the frequency of between-meal eating. More hopefully, would this trend be a positive one and support the thesis that frequent eating is related to caries experience? If so, the bulk of cases in the lowest frequency group should exhibit the least amount of caries. This pattern should shift as the frequency of eating between meals increases until, at the other extreme, the bulk of cases in the highest frequency group should exhibit the greatest amount of caries. A shift from lower to higher caries experience did occur as the frequency of between-meal eating increased and is illustrated in Table 3. The def groups containing the greatest concentration of cases at each frequency level are underlined.

Table 2—Average Frequencies and def* Teeth by Total Children and Various Subgroups, West Tennessee, 1956

Group	Number of Children	Average Frequency	def* Teeth
Males	404	1.77	5.99
Females	379	1.73	5.70
Rural	562†	1.71	5.95
Town	220†	1.87	5.74
Total	783	1.75	5.88

* Includes extracted primary molars.
† Discrepancy in the sum is due to exclusion of one undetermined case.

Finally, the data were arranged by frequencies more finely drawn and caries experience was represented by the number of def teeth per child, rather than in def groupings. Originally, as stated earlier, it was believed that the method employed in this study would not be sensitive enough to demonstrate a significant relationship at this level of fineness. However, a direct and consistent relationship, not attributable to chance, was disclosed and is illustrated in Figure 2. The children who reported eating no "sweet" and/or "sticky" between-meal items the day prior to the health conference exhibited a def of 3.3 teeth per child. As the frequency of eating such items between meals increased, a corresponding increase was noted in the number of def teeth per child. The children who reported eating four or more items exhibited a def of 9.8 teeth per child.

Discussion

Basic research findings, from which the carbohydrate-caries concept has evolved, are of little value from a public health point of view unless they can be

Table 3—Percentage Distribution of Children by Frequency of Between-Meal Eating and Number of def* Teeth, West Tennessee, 1956

Frequency Group	Number of Children	Number of def* Teeth				
		0	1–4	5–8	9–12	Over 12
0	129	41.9	28.7	16.3	7.8	5.4
1	235	23.4	32.3	25.5	13.2	5.5
2	211	16.1	27.5	30.3	20.4	5.7
3 or more	208	7.7	13.9	26.0	26.4	26.0

* Includes extracted primary molars.

translated effectively to the patient and the public. For the most part, literature in both the dental and nutrition fields is void of studies relating to the practical application of basic research findings of this kind. Consequently, little guidance is provided from this source to the health worker who is concerned about the translation of these findings into program content for everyday use.

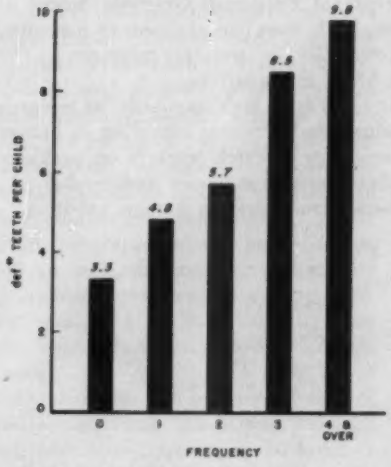
In spite of this lack, however, considerable effort aimed at eliminating or substantially reducing the consumption of refined carbohydrates has been expended by private practitioners and health workers—particularly in the dental field. For example, 75 per cent of the state dental divisions report activities relating to the reduction of refined carbohydrates as a part of the state dental health program.

In addition to stressing the importance of good nutrition to the total health of the individual, an attempt should be made to utilize every opportunity for developing specificity in the program content of all activities aimed at discouraging undesirable eating practices as they relate to dental caries. There is every reason to believe that developing specificity in everyday communication with the public, whether it be through direct counseling, educational activities, or information programs, will result in better programs. Program content that is clearly circumscribed, utilizing findings related to frequency of eating and caries such as presented in this report, for example, contributes to better program planning and evaluation. In contrast, program content consisting of a profusion of basic scientific facts and other details relating to the carbohydrate-caries relationship are based on an Alice in Wonderland philosophy; that is, "you are bound to get somewhere if you walk long enough." Content of this type is unwieldy and the effectiveness of an approach of this kind cannot be easily demonstrated. Also, since it appears that the items of high sugar content or those of a high degree of adhesiveness are the most popular types of between-meal items selected by children, programs aimed simply at quantitatively reducing the frequency of eating between meals might be more rewarding than programs overly concerned about the type of items consumed.

Utilizing findings such as presented in this report as a primary focus appears to be a logical beginning in determining program content. The method described in this study appears to be adaptable for

effective program evaluation. It is a relatively simple method and warrants further development as a basis for measuring changes in the between-meal eating patterns of children as related to caries experience. Also, content of this kind allows for ample individual identification, since the risks involved from excessive between-meal eating are defined explicitly. Consequently, more impetus may be generated for acceptance and action on the part of the individual or the public as a whole. Findings such as presented in this report should elicit a more desirable response from the public than generalizations such as "eliminate sweets," "reduce sugar," and "substitute fruit, popcorn, and nuts." These generalizations are difficult for the public to understand and difficult for them to apply throughout the course of everyday living. There is also reason to believe that they have become meaningless to the teacher as well as to the learner.

Figure 2—Number of def* Teeth, by Frequency of Between-Meal Eating, West Tennessee, 1956



* Includes extracted primary molars.

Summary

A study conducted at preschool health conferences in West Tennessee was designed to determine the types of between-meal items consumed and to explore the relationship between the frequency of eating between meals and caries experience. A method based on two gross determinations, the 24-hour recall and the def score, was used.

Most items consumed between meals were items of high sugar content or of a high degree of adhesiveness. The most popular type of between-meal items consumed, in descending order of popularity, were gum, candy, soft drinks, pastries, and ice cream. No significant differences were observed in the selection of between-meal items by boys and girls or rural and town children.

The average frequency of eating between meals was 1.75 items per day—the average number of def teeth, 5.88. These figures were applicable to the total groups studied and to each of its subgroups, that is, between male and female and between town and rural children.

A direct and consistent relationship between caries experience and the frequency of eating items of high sugar content or high degree of adhesiveness between meals was disclosed. As the frequency of eating such items between meals increased, a corresponding increase was noted in the number of def teeth per child. The children who reported eating no items of this nature between meals the day prior to the health conference exhibited a def of 3.3 teeth per child in contrast to the children at the other end of the scale. Those who reported eating four or more such items between meals exhibited a def of 9.8 teeth per child.

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New Professional Nutrition Society

The American Society for Clinical Nutrition was founded in May and is in the process of affiliating with the American Institute for Nutrition.

Richard W. Vilter, M.D., professor of medicine and chairman of the department, University of Cincinnati College of Medicine, was elected first president. President-elect is Robert E. Olson, M.D., Ph.D., professor and head of the Department of Biochemistry and Nutrition, University of Pittsburgh Graduate School of Public Health, Pittsburgh. Robert E. Hodges, M.D., associate professor of medicine, University of Iowa School of Medicine, Iowa City, is secretary-treasurer. (The office of the secretary-treasurer will serve as ASCN headquarters.)

The four objectives of the ASCN are to: (1) Foster high standards for research on human nutrition; (2) promote undergraduate and graduate education in human nutrition; (3) provide a place and opportunity for research workers on problems of human nutrition to present and discuss their research activities and results; (4) provide a journal for the publication of meritorious work on human nutrition.

The role of any medical care program is best studied in relation to complementary and alternative care resources which are available. So complex is today's spectrum of medical care services, and so diverse are people's ways of obtaining them, that a systematic approach is needed for studying the mass of detailed facts which represent people's medical care arrangements. The study reported here has developed a conceptual framework within which variously constituted patterns of medical care can be viewed in a rational, orderly, analytic way.

DELINEATING PATTERNS OF MEDICAL CARE

Jerry A. Solon, M.A., F.A.P.H.A.; Cecil G. Sheps, M.D., M.P.H., F.A.P.H.A.; and Sidney S. Lee, M.D., Dr.P.H., F.A.P.H.A.

Perspective

THERE WAS A TIME, really not too long ago, when medical care consisted of a simple one-to-one relationship between the patient and his doctor. For many people, however, this is no longer the case. Scientific advances have given rise to numerous medical specialties and everextending types of professional and technical practitioners in fields ancillary, though vital, to medicine. Organization of the early dispensaries for the poor was followed by the elaboration of modern hospitals and their outpatient departments, public health programs, private group clinics, and an increasing number and variety of organized programs of medical care. We have, as a result, a vast and complex web of facilities, services, and programs.

This web can well become a jumble of overlapping and conflicting, though well intentioned, activities. In order to combat this threat, any program for care should periodically ask of itself, "What is our objective?" Merely reiterating some original objective does not, however, adequately answer the question. It needs to be accompanied by such additional questions as: "Do present needs and conditions justify this objective?" "Are the activities of the program actually serving the intended objective?" These are especially compelling questions for hospital outpatient departments. This area of medical care organization has long been in need of fresh reappraisal. Repetitive statements of dissatisfaction with outpatient programs extend from early in the century to the very present.[1-3]

Beth Israel Hospital in Boston has begun an organized evaluation of its outpatient department. Our starting point is study of the current activities of the OPD. But even this offers many facets:

1. We have at hand counts of certain activities such as are found in conventional outpatient statistics everywhere. These tell us

the numbers of patients and numbers of visits. They do not, however, tell us much about who the patients are, the purposes of their visits, or what the use of the OPD or the particular clinic means in the whole pattern of their care.

2. We might gather additional data through standard kinds of studies of hospital and medical care utilization. Such studies offer information on the extent of use of given types of health resources and analytic descriptions of the users. Although these are useful measures, they provide only limited information toward understanding the character of the facility's use within the individual's medical care practices as a whole. For example, in a recent study at our hospital we analyzed the use made of the emergency unit; however, we recognize that our understanding of the patients' use of the emergency service is limited by lack of information about their over-all medical care.[4]
3. Some studies do establish a broader context within which measures of use take on dimension and meaning. Such studies provide analysis of specific services, resources, or populations against a background of alternative resources or medical care practices in general. We get a sense from the Regionville study,[5] for example, not only of what resources the people use for their medical care, but also of what these resources mean to them—something of how they use them. The University of North Carolina's outpatient study[6] conveys this sense of learning about the meaning of the use, the "patterns" of use, rather than merely documenting isolated incidents of use. A study of public assistance recipients in Syracuse[7,8] took as its scope the total public health and medical service utilization patterns of the groups studied.

The distinction here is essentially between having information of the kind that says (1) a person makes so many visits, or has so many days of care, with a given doctor or in a given facility; or (2) this is the way the person uses this resource, this is the role it has in his medical care.

At Beth Israel Hospital we are blending these into a two-phase approach, seeking to enrich the former with the perspective of the latter. In our initial study, therefore, we attempt to gain insight into the types of use being made of the outpatient clinics. We will then try to build this insight into entities of measurement and classification which will extend or replace the present relatively sterile kinds of outpatient statistics.

Study Method

Since the present focus is on analytic concepts, this is not the opportunity to relate all of the study methods in detail. However, a brief review will be helpful as background.

We sought to determine what part the outpatient department plays in the total medical care of its patients. This meant learning not only about their use of the clinics, but about how they obtain medical care in general. Our information was obtained through interviews with patients during their clinic visits. The study sample included 667 patients. Validation tests support the reliability of the interview information. Brief, structured interviews were used, in order (1) to avoid interfering with normal clinic procedures, and (2) to reach a large representative sample. The data-collection problem was, in fact, one of garnering from quick-rapport interviews, information susceptible to comprehensive analysis. A form of interview appropriate to this need was constructed and successfully employed.

The interview information thus obtained revealed the patient's various sources of medical care. Accompanying information was secured as to the circumstances of use, both current and expected.

The specific findings of this type of study will of course vary from hospital to hospital. Certainly the particular setting of this hospital in a large metropolitan center distinguishes it from the hospital serving a smaller community, or from the hospital serving a predominantly rural area. The study of the University of North Carolina outpatient

department, for example, highlights the distinctive significance of referrals from private physicians for diagnostic purposes. In this OPD in a rural state, patients are referred back to their private physicians for continuing medical care[1,6]; this function may be quite minimal, however, in a predominantly urban OPD.

Precisely because of differences among communities and hospitals, it seems important that individual institutions should study their own programs in order to appraise the role of the OPD in the medical care of its users. The same may be said of other programs of care as well. Methods which have emerged from our study at Beth Israel Hospital may be useful to others for their own analyses. The interpretive approaches which have been developed in this study have relevance for study and analysis of how people, in general, obtain their medical care.

The essential feature of the analysis lies in consolidating detailed information on use of medical resources into meaningful, integrated forms. This is accomplished by means of a conceptual framework for viewing the individual's medical care as a whole, and distilling from the variously constituted components of care a delineation of the person's pattern. Thus we translate the vast spectrum of utilization into representative patterns.

The Spectrum of Utilization

The striking impression gained from the original interviews is the great variety of uses and combinations which make up the medical care arrangements of the patients. A preliminary view of some of these variations has been given in an earlier paper.[9] A review of some specific cases reveals the range of patterns.

1. A 63-year-old woman obtains the full range of her medical care at Beth Israel Hospital. In the course of many years, she has been seen in more than half of the hospital's 30 clinics. Her use is by no means confined to the outpatient department. She turns not infrequently to the emergency unit, and has been recurrently hospitalized on the ward service. She speaks of the hospital having saved her life many times—"I wouldn't go anywhere else." She uses no other hospitals, and never calls on a private doctor.
2. Similarly, a 73-year-old man says, with good reason, "This is my hospital where they know my record" (his record is two inches thick). However, if he does not feel well enough to travel to the hospital to be seen in the OPD or in the emergency unit, he consults a general practitioner close to his home, either through an office or home call. This doctor, in turn, if he finds hospitalization necessary may refer him for admission on the ward service of a hospital more accessible geographically to the patient than is Beth Israel Hospital. Thus, this patient is not as wholly committed to Beth Israel as is the previous patient, although it does represent his major resource by far.
3. An 83-year-old man departs in yet another way from exclusive use of the hospital's resources. For ambulatory care—general, specialty, emergency—he is a hospital service patient. However, if a condition becomes serious enough to require hospitalization, he musters his and his family's resources for use of a private physician and private accommodations (with Blue Cross coverage).
4. This 71-year-old patient who relies on Beth Israel Hospital for his all-around care, nevertheless supplements this by seeing a private doctor with an occasional complaint. He also uses another OPD, but on referral from Beth Israel Hospital itself, in order to obtain deep x-ray therapy for which the other hospital has specialized equipment.
5. A 12-year-old boy uses a variety of clinics at the hospital. He also makes use of the emergency unit, for both medical and surgical complaints. The routine medical complaints, however, are shared with a local practitioner.
6. Here is a four-year-old boy who is brought ordinarily to the outpatient department, or in emergency situations to the emergency unit. He also has home calls, but without recourse to a private physician—he lives in an area served by a hospital-based home medical service for acute illness. He has also been taken to a public health clinic for immunizations.

These have been patients with an extensive reliance upon this hospital's services. We find patients at the other extreme too—with very limited scope of use of the OPD.

7. A 26-year-old woman uses private physicians for all of her regular medical care. Her use of Beth Israel's outpatient department is solely for the Psychiatry Clinic.
8. Similarly, a 34-year-old woman who is consistently a private-doctor patient, and a private-dentist user, comes to the OPD for some specialized dental care (on referral by her private dentist).
9. Another woman, 20 years old, obtains her obstetric care through the OPD, but all other care comes from private physicians.
10. An 88-year-old woman who is accustomed to private care attended a public health department glaucoma-screening clinic, whence she was referred to the Eye Clinic at this hospital for treatment. Her use of the outpatient department is limited to this clinic. However, declining financial capacity may in time induce her to shift more generally from private to clinic care.
11. Only passing use of the OPD was made by a 33-year-old man who had come into the hospital's emergency unit with a lacerated finger. Having been treated and sutured there, he was followed up in the Surgical Clinic until healed. This man's regular source of medical care is a private physician.

Other patients' use of the OPD is neither as confined as these last patients' nor as inclusive as the use described in the earlier cases.

12. A 78-year-old woman uses a private physician up to the point to which he feels qualified to handle her problems. Beyond that point, he refers her to the outpatient department for care. She has been seen in general, specialty, and dental clinics.
13. This 55-year-old employed woman has had a family doctor for many years. She has concurrently been using the outpatient department for an extensive range of specialties. In addition, she obtains routine annual checkups at a union health center.
14. A young working woman of 19 who uses the OPD only for the Eye Clinic has a private doctor for her usual care. However, her place of work also offers health service, including general medical and dental care, of which she avails herself.
15. A college student uses his school clinic for routine and minor ailments. For "serious" problems he comes to the outpatient department. In addition, he uses a private ophthalmologist, and a private general practitioner for home calls.

Some patients use more than one outpatient department, in various kinds of combinations with other sources of care.

16. A woman of 69, new to Beth Israel's OPD, regularly uses another hospital's OPD. For a chronic skin condition she had used that OPD's specialty clinic and also a private dermatologist, and now was presenting herself to Beth Israel's Skin Clinic.
17. A married man of 34 was referred to the Fertility Clinic at Beth Israel from another hospital where he ordinarily goes. It was at still another hospital, however, that he had recently been hospitalized by a private surgeon whom he used for a hernia repair. And for emergent conditions, he turned to a fourth hospital, which was nearest his home.
18. A 68-year-old woman is using three different OPDs for three different conditions. She discriminates in her choices according to what she believes to be the superior source for the particular type of condition. In addition, she uses a private general practitioner for both home and office calls, but with no greater commitment than to any other source of care.

The multiplicity of elements which make up people's ways of getting medical care needs to be reduced to some comprehensible form. Analytic constructs need to be applied to render the mass of data manageable.

Analytic Concepts

1. "Current" Sources of Medical Care

To begin with, if we are seeking to represent what constitutes a person's sources of medical care, should we rely on objective criteria—the sources actually utilized—or on the individual's subjective conceptions of what he regards as his current sources? How far back do we delve for actual utilization?

Inset 1 — Current Sources of Medical Care: Criteria

a. Objective, Current Use
Sources of medical care which the individual has used during the past year.

b. Subjective, Potentially Current Use
(1) Sources which the individual recalls having used prior to the past year and states he would use again when and if need arises.
(2) With specific reference to emergency care and inpatient care, sources—regardless of whether previously used—which the individual states he would use if need arises.

Do we admit the "future" into the representation, in the form of what the person intends to do for his medical care?

We need to recognize that whatever criteria are selected, they are necessarily arbitrary. We can only insist on reasonable criteria which can be feasibly applied.

For the present study, criteria shown in Inset 1 were established to identify the sources constituting the person's "current" pattern of obtaining medical care.

As can be seen, we have in these criteria a combination of past demonstrated practices and the patient's intentions for future use, within given limitations. The rationale for these criteria is as follows, point for point.

a. Actual use within the recent past is self-justifying. The designation of one year is geared to the objective of having a long enough period to reflect significant experience, and yet not to extend beyond reasonably accurate memory span. This type of information is characteristic of most utilization studies (cf. item No. 2 in the "Perspective" section at the beginning of this paper).

b. Reliability of statements of intended use may perhaps be questioned. Yet we cannot expect most people's patterns of medical care to be contained within the experience of any single year. We therefore permit intended use to enter into the represented pattern under specified conditions:

(1) Basically, indications of intention are honored only where they hinge on the individual's past experience with a given source.
(2) Exceptions to criterion b(1) are made with regard to emergency and inpatient care. Many people would not have had occasion to experience such events, yet are probably capable of visualizing the circumstances clearly enough to give a fairly reliable indication of future action.

Taken together, then, the various sources reported by the patient under these criteria constitute his "current pattern." The sources may be designated as (1) those which are current by virtue of past-year use, and (2) those which are "potentially current."

2. "Central" Source of Medical Care

A mere recitation of the patient's sources of care gives no coherence for necessarily understanding his pattern of care. Some integrating perspective of the sources in his pattern is needed. We found this integrating element primarily in the concept of "central source of care." We define this concept in Inset 2.

In many of the individual cases cited above there was revealed a multiplicity of sources of care. Personal feelings, circumstances, conveniences, finances, affiliations of patient or physician, cultural forces, administrative influences, and happenstances may bear on any particular choice made at a given time. There are also the distinctions as to ambulatory and inpatient care, to office and home calls, to regularly "planned" or emergency care, and as to general and specialist care. To designate the central source of care in multiple-source cases permits us to identify how the person's pattern of care is structured. It does not in itself necessarily explain the function of each component of his care, but it is a major anchoring point.

The concept is no less useful in its

Inset 2—Central Source of Medical Care: A Definition

The individual's "central" source of care is the focal point of his current pattern of medical care. It is the most important facility or physician to whom he turns when he needs medical advice or care—that is, the most important to the patient in terms of having his greatest trust or reliance in that source. The patient may use that source as a referral point, or as a continuing source of verification or reassurance.

As this suggests, the criterion of "centrality" does not point to where the individual necessarily receives the greatest volume of his care. Regardless of type of care or amount of care which it provides, it is the source to which the person looks for his direction signals in obtaining care, or the source which is his mainspring of assurance regarding his condition or his care. This may, of course, coincide with the source of services which predominates in volume; but it need not do so to meet the criterion of "centrality."

application to those patients who do not have a central source of care. Absence of a central source in a person's pattern is as revealing as is its identification for the individual who does have a central source. Thus, we have a patient whose current pattern of care shows two hospitals for outpatient care, two other hospitals for inpatient care, a general practitioner and a specialist, and any number of potential additional sources as yet unnamed because of the individual's distinctly dispersed manner of seeking care. He says:

"I don't have a family doctor. I've never needed one. I felt I wanted a checkup, so I used this guy — he's a friend of my mother's. . . . I only went to the specialist once. He gave me all kinds of tests, but I still have the problem."

Regarding what his choice would be under given circumstances, he had this to say:

"I guess I'd go to (X) Hospital; they're supposed to be the best place for diagnoses, aren't they? I guess all hospitals are good. Maybe I'd use the (Y) Hospital, they're good. Or I'd use this hospital, I suppose. I'm not sure what I'd do. It would depend on what the condition was."

This type of selectivity and uncertainty, and absence of a "home base" for medical care, characterizes a substantial number of people. It is as significant to identify this fact as it is to capture the essential organization of more structured patterns.

The importance of structured patterns to some patients is accented by their intense desire for a central source of care. The very first case described earlier illustrates the type for whom the outpatient department of a particular hospital is not only central, but whose total care is encompassed within the hospital. We have patients whose inclination toward having a private physician as a central source is so strong that the loss of an old family doctor—by illness, retirement, death, or moving—does not change their pattern: they find and identify themselves with another one. Some, indeed, were in this process of seeking a substitute when our study tapped them for information.

3. Role of Central Source of Medical Care

Identification of the individual's central source of care, we have said, places his whole medical care pattern in perspective. It is helpful to go beyond this, to comprehend the role of the central source of care in more specific terms; for we recognize from study of patients' patterns of care that different medical functions may go with "centrality." For one patient it is his source of general medical care which occupies the focal position; for another, it is the source of some specialty care important to his well-being. Thus, for the cardiac patient it may well be his cardiologist who is his central source of care. For one patient the psychiatrist fulfilled this function.

Inset 3 spells out the variety of roles which we found to be represented in the patients' central sources of care. It may be noted that some patients use as a central source someone who does not himself provide direct treatment to the subject. This occurs with the patient, for example, who consults a physician friend when confronted with any ailment, obtaining some general suggestions, reassurance, or direction for seeking medical attention from one source or another, but without actual examination or treatment by this physician.

4. Configuration of Medical Care Pattern

Quite a variety of resources might be included in the individual's current pattern of medical care. The criteria which define "current sources" admit whatever sources of care the patient uses (or quite clearly would use given the need), regardless of the extent or apparent significance of the use. In other words, by this means we take account of all of the patient's sources of care.

We may want a general, rather than a detailed, understanding of the patient's pattern of care. Some of the resources which he has had occasion to use currently may have little consequence in his regular pattern. This would be true, for example, of a one-time use of a resource currently, which he would then have no inclination to use again. It may be use of a resource whose service is so peripheral to the individual's care as to be quite insignificant. At times we want to unclutter the picture of the patient's total care in order to view its essential features more clearly. For this reason, then, we have employed the concept of a general "configuration" of the person's medical care. Variations can be introduced to accommodate particular content and objectives, but the classification given in Inset 4 has been found useful in our study of the outpatient department.

While the inclusiveness of "current sources of care" gives us the whole range of the patient's medical services, the "configuration" gives the essence.

Inset 3—Role of the Patient's Central Source of Medical Care: A Classification

- General Medical Care Only
  - Without any "multiple-source use" for general medical care
  - With "multiple-source use" for general medical care
- Specialty Medical Care Only
  - Without any specified or implied limits
  - With some specified or implied limits
- General and Specialty Medical Care
  - Without any specified or implied limits on specialty conditions
  - With any general medical care elsewhere
  - With any specialty(s) excluded, and possibly also any general medical care elsewhere
- Split Central Source of Care
  - On basis of general vs. specialty medical care (or "minor" vs. "major or serious" conditions)
  - On some other basis
- Guidance with Little or No Direct Treatment (e.g., telephone advice, guidance from doctor in family)

Summary

People obtain their medical care in many ways. Merely documenting the sources of medical services and designating the types of services creates a procession of chaotic data. Systematic organization of such data is needed to make them useful for study and analysis.

Some key ways of conceptualizing the mass of information on people's use of medical care resources have emerged from a study of Beth Israel Hospital's Outpatient Department in Boston. The analytic concepts permit us to:

a. Delineate the patient's "current sources of medical care."
b. Identify his "central source of care."
c. Describe the "role of his central source of care."

Inset 4—Configurations of Medical Care Patterns: A Classification

General Medical Care Essentially from Private Doctor(s), and—
- Specialty medical care essentially from OPD(s)
- Pattern of specialty medical care not determinable

General Medical Care Essentially from OPD(s), and—
- Specialty medical care essentially from private doctor(s)
- Pattern of specialty medical care not determinable

Pattern of General Medical Care Not Determinable, but Specialty Medical Care Essentially from—
- Private doctor(s)
- OPD(s)

Both General and Specialty Medical Care Essentially from—
- Private doctor(s)
- OPD(s)

General Medical Care Shared Between Private Doctor(s) and OPD(s), but Specialty Medical Care Essentially from—
- Private doctor(s)
- OPD(s)
- Pattern not determinable

Specialty Medical Care Shared Between Private Doctor(s) and OPD(s), but General Medical Care Essentially from—
- Private doctor(s)
- OPD(s)
- Pattern not determinable

Both General and Specialty Medical Care Shared Between Private Doctor(s) and OPD(s), with—
- Private doctor(s) more central for both
- OPD(s) more central for both
- Private doctor(s) more central for general medical care, and OPD(s) more central for specialty medical care
- OPD(s) more central for general medical care, and private doctor(s) more central for specialty medical care
- Centrality of specialty medical care not determinable, but general medical care more centrally from—
  - Private doctor(s)
  - OPD(s)
- Centrality of general medical care not determinable, but specialty medical care more centrally from—
  - Private doctor(s)
  - OPD(s)
- Centrality of both general and specialty medical care not determinable

d. Distill the essentials of his total care pattern into a "configuration of medical care pattern."

These concepts enable us to consolidate and integrate detailed information obtained from interviews with patients. The resulting integration of data lends itself to analysis of patients' medical care patterns and, in turn, analysis of the place of the OPD in those patterns.

These integrating concepts, although they are derived from a study of outpatient care, are equally applicable to any medical care setting or to the population at large.

A companion paper[10] will demonstrate the application of these concepts to the hospital's outpatient population. Resulting data will illustrate how these analytic tools help us to understand the role of the outpatient department in medical care.

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Training in Audiology

Temple University School of Medicine, Philadelphia, offers a "Short Course in Audiology" several times each year.

The course is one week in length and encompasses theoretical and clinical aspects of audition. Hearing testing and interpretation are stressed, and office procedures, equipment, and industrial audiometry discussed.

Further information from Philip E. Rosenberg, Ph.D., director, Section of Audiology, Temple University Medical Center, 3401 North Broad St., Philadelphia, Pa.

A study of the charts of 719 patients in the General Medical Clinic of the New York Hospital permitted an analysis of the cost of providing them with comprehensive medical care. A number of findings were established, among them an inverse relationship between economic status and costs incurred, as well as increasing cost with age, more so for men than for women. A number of interesting clues emerge for further study.

COST OF CARE TO AMBULANT PATIENTS UNDER A COMPREHENSIVE CARE PROGRAM

George G. Reader, M.D., F.A.P.H.A., and Margaret Olencki, M.A.

FEW WOULD quarrel with the aim of providing complete medical service, but many have questioned its economic feasibility on a large scale. This paper will attempt to indicate what costs have been involved in providing comprehensive medical care to ambulant patients in a large metropolitan teaching clinic.

Early in the investigation the ambiguities inherent in the concept of cost of medical care became apparent. For one, before assessing the economic feasibility of comprehensive medical care, one has to come to some decision about the level at which to aim. If one aims at the highest level of health it is likely that excellent medical care, as complete as the patient requires, will coincide with economical medical care, for prevention is usually cheaper than cure, and early treatment is cheaper than that started late in the course of a disease, both for the patient and for society. It may be argued that the expense of seeking nonexistent disorders can be large, in which case the cost of care in relation to the amount of disease actually discovered may seem hard to justify. But if one lowers one's standards, one can probably manage to spend far less money.

If a patient comes to an outpatient clinic with complaints of itching skin and apparent functional epigastric pain, it is cheapest of all to refer him elsewhere: then he has consumed perhaps $5 worth of the registrar's and admitting physician's time. The next cheapest is to send him to the Dermatology Clinic until the skin problem is cleared up and then close the case: this might cost between $15 and $20. To refer him to the General Medical Clinic after Dermatology, to give him a complete work-up, a G-I series and various other tests to rule out organic disease may cost $50 to $75. Which level of care is appropriate to this patient? If an early cancer is discovered, and the patient's life saved or lengthened thereby, the cost of the last alternative is deemed justified, in fact any other course of management would be castigated as inadequate. But if the complaint does turn out to be functional, who is to say if the comprehensive care has been extravagant or the

least one ought to do for the patient? It is rather unfair to judge by results, if the original complaints are consistent with both the presence and absence of serious disease.

Thus the notions of cost and quality of medical care (or level of health to be aimed at) are closely related. One cannot meaningfully compare the cost of various types of medical care until one discovers some way to hold constant their quality.

Research into the cost of providing comprehensive medical care, then, involves three stages. First, one has to decide on the level or quality of care to be aimed at. Second, one must find out how many of the various ingredients of medical treatment, such as doctor visits, x-rays, drugs, and so on, occur in a given medical care program. Third, a way must be found of discovering the true cost of these individual ingredients, and calculating the total cost per patient, or per patient group, of this kind of care.

Method of the Present Study

The charts of 719 patients, a cross-section of the General Medical Clinic population, were studied over the period of a year, from April, 1955, through March, 1956. Broadly speaking, General Medical Clinic patients are a fairly old, fairly sick group of chronically ill patients of intermediate to low socio-economic status, of whom 64 per cent are 50 or over and nearly 40 per cent are aged 60 or more. Women outnumber men 2 to 1, predominating especially in the younger and middle age groups. Thirteen per cent of the patients are Negroes, nearly half are foreign-born, and they come from all parts of New York City—only one-fifth come from the the Yorkville district in which New York Hospital is located. The median family income is $191 per month; but only 9 per cent of the families receive any form of public assistance. Forty-two per cent of the patients have some form of cardiovascular disease; other common primary diagnoses are syphilis, diabetes, and psychoneurosis, with many secondary diagnoses, such as osteo-arthritis, chronic pulmonary disease, and obesity.

All visits made by these patients and all services carried out for them were recorded. The study extended not only to their experience in the General Medical Clinic, but also covered visits and services in other departments of the OPD, as well as admissions to the hospital inservice.* Costs of Visiting Nurse Service* where care was provided to patients in the sample were also assembled. For want of adequate data, the study did not cover drugs, nor did it include visits to private physicians, clinics outside the hospital, or admissions to other hospitals. All information was obtained from the charts: the patients themselves were not interviewed.

In deciding how to code the costs of the various services, a dilemma was noted. It was considered of interest to know how much the patient actually paid out of his own pocket, according to his clinic rating based on his financial status; this raised no problem, and so costs were coded in this way. But what a patient pays in a voluntary hospital with a sliding scale of fees is more a function of his economic status than of his health needs; and the distribution of payments made by our sample of patients would give little idea of the volume of care received by this designated group. Ideally, one would like to calculate the real cost of the care provided; detailed statistics on the time taken and the materials used in each individual kind of laboratory test, a time study on the arrival and departure of attending

* For the sake of simplicity, this paper covers only outpatient costs. Costs of hospital admission and Visiting Nurse Service to these clinic patients will be reported elsewhere.

physicians and patients, and so forth, could give an idea of the true cost of such care. But in the absence of a staff adequate for such an enterprise, it was decided to apply some constant figure to each of the elements of medical care (the visits, EKG's, urinalyses, and so on) to permit analysis of the way in which costs for ambulant care are accumulated, and of the kinds of patients receiving various kinds and amounts of medical care. On the advice of the comptroller, the hospital's A rate, the highest rate charged to clinic patients, was adopted as the nearest available approximation to cost. So the second way in which costs were coded was to calculate the cost of each patient's year of treatment as it would be charged at the A rate. (In some cases, of course, the patient was already paying this rate, in which case costs incurred, as thus defined, and charges paid would coincide.)

Findings

Fifty-one patients neither incurred nor paid any charges during the study year. They were included in the sample merely because they had appointments to the General Medical Clinic during the month of April, 1955, in which the sample was drawn, but since they broke those appointments and did not return subsequently, they will not be mentioned further. The report will concern the remaining 668 patients.

The distribution of the patients according to the amounts they actually paid for outpatient care is shown in Table 1; 118 medically indigent patients received services but did not pay for any part of them. At the other end of the scale, 90 patients paid out more than $50 for outpatient care in a year, and for 12 of these 90 patients, the amount paid exceeded $100. The median payment for the whole group was not large, namely, $13.

However, as noted earlier, this gives us little idea of the volume of services provided, since a sliding scale of fees adjusts the costs incurred to an amount the patient is likely to be able to pay. For instance, one of the 118 patients who herself paid nothing, a 65-year-old woman with rheumatic heart disease, made 17 visits to the outpatient department in the course of a year, had three chest x-rays, an EKG, and several blood tests. Had she been paying the full clinic rate, the cost of her treatment would have amounted to $96. A better picture of the volume of service provided for the various patients, then, is given by Table 2, which shows the number of patients incurring various costs if the services they actually received are charged for at the highest clinic rate.

Even calculated at the A rate, costs were quite minor for close to one-third of the patients—less than $20 for the year, or whatever part of it they were under treatment. (In many cases the patient was under care only part of the year.) At the other extreme, 74 patients incurred costs in excess of $100, and in two of these 74 cases the cost mounted up to more than $300. One of these patients had a cirrhosis with eso-

Table 1—Number of Patients Paying Various Amounts for Outpatient Care

	Number of Patients	Per cent of Patients	
Nothing	118	18	
Under $ 10	184	28	
$ 10–$ 19	93	14	
$ 20–$ 29	78	12	
$ 30–$ 39	63	9	Median: $13
$ 40–$ 49	37	5	
$ 50–$ 69	54	8	
$ 70–$ 99	24	3	
$100–$299	12	2	
No Answer	5	1	
Total	668	100	

phageal varices, among other diagnoses. The greater part of his incurred $307 outpatient costs consisted in repeated esophograms and liver function studies for which, however, he did not have to pay, as the laboratory work of the Liver Clinic happened to be supported by research funds. The other patient, who incurred costs of $328, was a severely neurotic woman with little organic pathology, who made 74 visits to the outpatient department in the course of the year! Needless to say, this was an exceptional case.

Turning from aggregate costs of medical care to analyze its constituent parts, which elements loom largest in the cost of the average patient's care? Do the diagnostic procedures such as series of x-rays add up to the most serious part of the bill? Does prolonged treatment by ancillary personnel, such as physiotherapy, rank highest? Or is it the constancy of medical supervision, involving steady weekly or monthly visits for the chronically ill patient, which really forms the bulk of the cost of clinic care?

Table 3 provides the answer for the group of patients studied. Visits to the physician, because of their wide occurrence, account for the largest single share of outpatient costs incurred. Practically all 668 patients saw a doctor during the study year, so the median for all patients and for those incurring this type of cost is the same, namely, $18. This is not the case, however, for x-rays and laboratory tests. Nearly a third of the patients did not incur this type of expense, but for the two-thirds who did, the median cost incurred is higher than that for clinic visits, namely, $21. Physiotherapy, x-ray therapy, and nutrition clinic visits turn out to play a comparatively minor role in total outpatient costs: Few patients use these services, and the median cost for those who do is only $4. Costs tabulated under the heading of "Free Services" included routine tests such as urinalysis for new patients and for diabetics, serological tests for syphilis, and any other tests for which none of the patients had to pay, regardless of economic status. They were tabulated separately in order to investigate the magnitude of this type of "hidden cost"; but in an analysis of the ingredients of medical care received by the patient, they could well be included with x-rays and laboratory tests. In any case, though doubtless mounting up considerably in the hospital's total bill, they did not play a large part in the individual patient's medical care bill; less than half the patients incurred such costs, and the median for those who did was only $3.

Table 2—Number of Patients Incurring Various Amounts for Outpatient Care, Using the Highest Clinic Rate as the Best Available Approximation to Cost

	Number of Patients	Per cent of Patients	
Under $ 10	109	16	
$ 10-$ 19	87	13	
$ 20-$ 29	79	12	
$ 30-$ 39	72	11	
$ 40-$ 49	53	8	Median: $38
$ 50-$ 69	112	17	
$ 70-$ 99	81	12	
$100-$200	72	11	
$300 Plus	2	..	
No Answer	1	..	
Total	668	100	

Something has been learned of the range and kinds of costs encountered over a period of treatment of up to a year by a cross-section of General Medical Clinic patients. These costs (using the highest clinic rate as an approximation to cost) range from $3 up to $328, the median being $38. However, since the range is so great, it is obviously important to sort the high cost from the low cost patients. The question to be

Table 3—Number of Patients Incurring Various Types of Outpatient Costs*

	Visits	Lab. X-Ray	Ancillary Services†	Free Tests (Routine or Research)‡	Total OPD Cost
Nothing	2 ..	203 (30%)	541 (81%)	370 (55%)	0 (0%)
Under $ 10	208 (31%)	116 (18%)	98 (15%)	265 (40%)	109 (16%)
$ 10–$ 19	135 (20%)	104 (16%)	13 (2%)	24 (4%)	87 (13%)
$ 20–$ 29	109 (16%)	89 (13%)	3 (..)	3 (1%)	79 (12%)
$ 30–$ 49	120 (18%)	92 (14%)	4 (1%)	2 (..)	125 (19%)
$ 50–$ 99	83 (13%)	55 (8%)	4 (1%)	2 (..)	193 (29%)
$100–$299	10 (2%)	8 (1%)	3 (..)	1 (..)	72 (11%)
$300 plus	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (..)
No Answer	1 ..	1 ..	2 ..	1 ..	1 ..
Total	668 (100%)	668 (100%)	668 (100%)	668 (100%)	668 (100%)
Median, all patients	$18	$11	..	..	$38
Median, patients with this cost	$18	$21	$4	$3	$38

* From this point on, "cost incurred" = whatever the individual patient would have paid for the service he received had he been paying the A rate, the highest clinic rate.
† Nutrition Clinic, Physiotherapy, x-ray therapy, visits to nurse for injection only.
‡ E.g., serological test for syphilis for all new patients and for syphilis patients, urinalysis for new patients, liver function studies for Liver Clinic patients.

examined next, then, will be: What kinds of patients have the most, and which the least, expensive services?

First, as Table 4 shows, there are some interesting differences between diagnostic groups. Patients with heart disease, particularly the degenerative conditions such as arteriosclerotic and hypertensive heart disease, tend both to longer episodes of illness (65 per cent are chronic compared with 58 per cent of all patients) and to more costly treatment (54 per cent incur costs of $50 or more, compared with 40 per cent of all patients). Exactly the same proportion of patients with syphilis as of cardiac patients are under long-term care, but here the cost picture is very different. Nearly half these patients (compared with 22 per cent for cardiacs and 29 per cent for all patients) incur quite minor costs of $20 or less, and few syphilis patients run up high costs. One of the reasons for this cost pattern is the existence of the Syphilis Study Group within the General Medical Clinic. This research group has been engaged in long-term follow-up of syphilis patients, many of whom are symptom-free, and are on a health maintenance regimen involving twice-yearly visits. Thus most syphilis patients, because of the nature of their health needs, receive a rather low intensity of medical care, and this costs comparatively little.

Patients with psychoneuroses or functional illness tend to incur less than average costs, but this seems associated with a tendency to acute rather than chronic episodes of care. This may not mean that their episodes of illness are acute rather than chronic; but they tend to be closed out or told to "return PRN" after a time, usually because it is felt that no further benefit will accrue to them from continued visits. The pat-

tern for patients with nonorganic illness, then, seems to be one of a brief, fairly high-cost episode of care, while tests to rule out organic etiology are being carried out, rather than continuing care which piles up costs by slow increments, as seems to occur typically for cardiac patients.

Some of the variance observed between diagnostic groups is probably contributed by factors other than diagnosis, which are independently associated with the latter. For instance, the degenerative heart diseases, which incurred high costs, are diseases typical of old age; while psychoneuroses, incurring if anything lower than average costs, are more typical of the middle years. Thus it is likely that age variations, and possibly sex differences, will be found between the various cost groups. Table 5 investigates this hypothesis.

First, as the table shows, there is indeed a pattern of increasing cost with increasing age. If one looks at the general picture, combining male and female patients, the trend is marked. Twenty-nine per cent of all patients incur minor costs under $20, but as many as 38 per cent of the under-forties fall in this category, compared to 25 per cent of the sixties-and-over. Yet closer inspection reveals that this trend is largely accounted for by the male patients. If one looks down the first column of Table 6 at those incurring minimum costs of less than $20, one sees a steep decline in the proportion of males incurring such costs as age advances. With women patients, the cost/age relationship is far less clear-cut. At the other end of the scale again, of the 35 men who incurred costs of $100 or more, only one is under forty, and nearly all of them, 28 in fact, are sixty or over. With the 37 women patients with high costs, the trend is in the same direction, but is much more gradual. In fact, if one compares the under-forties with the over-sixties on costs incurred, the differences for men is highly significant, while the difference for women is so small it could well have occurred by chance.

One is hard put to suggest an ex-

Table 4—Distribution of Patients Incurring Various Outpatient Costs, Distinguishing Acute from Chronic Patients, by Selected Diagnoses

Acute	Diabetes	Syphilis	ASHD and/or HCVD	Any Heart Disease	Neurosis or Functional	All Patients
Under $20	19 (19%)	27 (23%)	29 (15%)	49 (18%)	38 (20%)	140 (21%)
$ 20-$49	9 (9%)	11 (10%)	18 (9%)	27 (10%)	32 (17%)	83 (12%)
$ 50-$99	9 (9%)	2 (2%)	17 (9%)	19 (7%)	18 (10%)	53 (8%)
$100 plus	0 (0%)	0 (0%)	2 (1%)	3 (1%)	1 (1%)	5 (1%)
Total	37 (36%)	40 (35%)	66 (35%)	98 (35%)	89 (48%)	281 (42%)
Chronic						
Under $20	3 (3%)	28 (24%)	4 (2%)	12 (4%)	17 (9%)	56 (8%)
$ 20-$49	23 (23%)	27 (23%)	33 (17%)	53 (19%)	32 (17%)	121 (18%)
$ 50-$99	26 (25%)	12 (10%)	52 (27%)	73 (26%)	31 (17%)	140 (21%)
$100 plus	13 (13%)	8 (7%)	32 (17%)	38 (14%)	15 (8%)	67 (10%)
No answer	0 0	0 0	3 (1%)	3 (1%)	2 (1%)	3 ..
Total	65 (64%)	75 (65%)	124 (65%)	179 (65%)	97 (52%)	387 (58%)
Acute and Chronic						
Under $20	22 (22%)	55 (48%)	33 (17%)	61 (22%)	35 (30%)	196 (29%)
$ 20-$49	32 (31%)	38 (33%)	51 (27%)	80 (29%)	64 (34%)	204 (31%)
$ 50-$99	35 (34%)	14 (12%)	69 (36%)	92 (33%)	49 (26%)	193 (29%)
$100 plus	13 (13%)	8 (7%)	34 (18%)	41 (15%)	16 (9%)	72 (11%)
No answer	0 0	0 0	3 (2%)	3 (1%)	2 (1%)	3 ..
Total	102 (100%)	115 (100%)	190 (100%)	277 (100%)	186 (100%)	668 (100%)

Table 5—Age and Sex Distribution of Patients Incurring Various Outpatient Costs

Male	Cost Incurred Under $20	$20–$49	$50–$99	$100 Plus	Total
Under 40	20 (49%)	13 (32%)	7 (17%)	1 (2%)	41 (100%)
40–59	30 (32%)	35 (38%)	21 (23%)	6 (7%)	92 (100%)
60 or over	27 (22%)	28 (23%)	40 (32%)	28 (23%)	123 (100%)
Total	77 (30%)	76 (30%)	68 (26%)	35 (14%)	256 (100%)
Female					
Under 40	32 (34%)	27 (28%)	30 (32%)	6 (6%)	95 (100%)
40–59	47 (27%)	62 (36%)	48 (28%)	15 (9%)	172 (100%)
60 or over	39 (28%)	37 (27%)	47 (34%)	16 (11%)	139 (100%)
Total	118 (29%)	126 (31%)	125 (31%)	37 (9%)	406 (100%)
Male and Female					
Under 40	52 (38%)	40 (30%)	37 (27%)	7 (5%)	136 (100%)
40–59	77 (29%)	97 (37%)	69 (26%)	21 (8%)	264 (100%)
60 or over	66 (25%)	65 (25%)	87 (33%)	44 (17%)	262 (100%)
Total	195 (29%)	202 (31%)	193 (29%)	72 (11%)	662 (100%)

planation for this undoubted difference. There are practically no obstetrical cases in the sample to boost the costs of the younger women, and in any case the outpatient costs of pregnancy, excluding delivery, are not great. Other studies showing increasing costs with age for both sexes have usually included hospitalization costs. It may well be that men but not women increase their use of outpatient facilities as they get older, while both use the inservice of the hospital more with increasing age. It is obviously of great importance, at a time when the possibility of insurance for outpatient care is being explored, to investigate how far these findings can be generalized.

The second general relationship emerging from our data is an inverse one between costs incurred and economic status as indicated by the clinic rating given by the admitting registrar; as Table 6 shows, the poorer the patients, the higher the costs incurred. (It is stressed that only costs incurred at the A rate, and not amounts actually paid by the patient, stand in this inverse relationship to economic level; for of course the idea of sliding fees is to see that the patient is only billed an amount within his competence to pay.) Even when age is held constant—for age and clinic rate too are inversely correlated—this relationship seems to hold. Thus one more piece of evidence is added to the thesis that the less the patient's ability to pay, the greater tend to be his medical needs. Since only 9 per cent of the present sample was found to be receiving either Welfare or Old Age Assistance, the problem is not limited to the totally indigent.

Summary and Conclusions

In summary, a study of the charts of 719 General Medical Clinic patients over the period of a year permitted an analysis of the cost of providing them

Table 6—Distribution of Patients Incurring Various Outpatient Costs, by Clinic Rating

Cost Incurred	A Rate*	B or C	D or E	F Rate	Total
Under $20	94 (49%)	36 (19%)	41 (21%)	21 (11%)	192 (100%)
$ 20–$49	78 (39%)	46 (23%)	50 (25%)	25 (13%)	199 (100%)
$ 50–$99	64 (34%)	33 (18%)	55 (29%)	36 (19%)	188 (100%)
$100 plus	14 (20%)	9 (13%)	23 (32%)	25 (35%)	71 (100%)
No answer	1 ..	0 0	1 ..	1 ..	3 ..
Total	251 (38%)	124 (19%)	170 (26%)	108 (17%)	653† (100%)

* A rate patients pay $3 per visit; B rate, $2.50; C rate, $2.00; D rate, $1.00; E rate, 50 cents; F rate pay nothing. For each x-ray, lab test, etc., charges are similarly graduated.

† Eleven patients who were employees, and four patients for whom clinic rate was unknown, have been excluded from this table.

with a comprehensive type of medical care. Costs of visits and services were tabulated both in terms of charges paid by the patients and in terms of expense as judged by the full clinic or A rate.

It was found that 18 per cent of patients paid nothing for services and that 2 per cent paid over $100. The median cost to patients was $13. On the other hand only 16 per cent of patients incurred charges of less than $10 and 11 per cent incurred an expense of over $100. The median expense incurred was $38. Visits to a physician accounted for the largest single share of outpatient cost, but x-rays and laboratory tests were the most expensive items.

Cardiovascular disease and diabetes create above average costs, while patients with syphilis are the least expensive. Psychoneurosis is associated with a fairly large initial expense as serious disease is ruled out, but is thereafter below average cost. Costs also increase with the age of the patient, more so for men than for women. It is hard to say which of the factors, increasing age or certain diagnoses often associated with age, contribute more to rising costs.

An inverse relationship was found between costs incurred and economic status, the poorer patients incurring the higher costs.

No general conclusion is warranted from these findings but certain clues for further study are clearly discernible.

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This paper was presented before the Medical Care Section of the American Public Health Association at the Eighty-Seventh Annual Meeting in Atlantic City, N. J., October 19, 1959.

This study of a sample of referrals for public health nursing services in the General Medical Clinic of The New York Hospital revealed shortcomings in communication. Public health nurses uncovered a considerable body of information not previously included in the patients' charts. The significance of these referrals in providing continuity of care is discussed.

COMMUNICATION BETWEEN HOSPITAL STAFF AND COMMUNITY AGENCIES: A STUDY OF REFERRALS TO THE PUBLIC HEALTH NURSE

Doris R. Schwartz, R.N.

DURING a recent 12 month period, 368 referrals to various public health nursing services were made in behalf of patients attending the General Medical Clinic at the New York Hospital. In order to ascertain the usefulness to patients of this public health nursing follow-up and to assess the quality of communication between the hospital staff and the community nursing agency, a 50 per cent random sample of these referrals was intensively analyzed. This paper describes the referral process and presents the results of the analysis with respect to the kinds of services requested by hospital staff, the range of information supplied in return by public health nurses, and certain apparent difficulties in communication that existed between the two groups.

New York City has a well planned, uniform referral system between its hospitals and its community public health nursing agencies. The tool used to make these referrals was developed in 1946 under the sponsorship of a committee of the United Hospital Fund. It is called the "Greater New York Interagency Referral Form" and is used by most hospitals and public health nursing agencies within the city today. This form has been widely adopted by other communities throughout the country, for it has proved to be a useful tool. Like any tool, of course, its worth increases when people use it with skill and judgment.

The physicians and nurses who were responsible for the regular case load in the General Medical Clinic initiated the 184 referrals that were studied. However, similar referrals are made from all services of the hospital and in behalf of patients of every economic level.

Table 1 shows the kinds and frequency of the nursing services requested by the clinic staff in behalf of the 184 patients whose records were studied. It will be noted that patients were referred for several kinds of nursing service to be performed at home. These included:

1. General Nursing Care — help with bath, diet, and setting up a daily regimen;
2. Teaching members of a family how to give general nursing care;

3. Carrying out a definite request to change a dressing, give an intramuscular injection, or demonstrate a specific set of exercises;
4. Teaching and giving supportive health supervision to a newly-diagnosed patient, for example, one with diabetes or rheumatic fever;
5. Evaluating the suitability of a home situation for giving organized home care there;
6. Evaluating accident hazards in the home of an elderly or disabled person.

As Table 1 indicates, the most frequently requested kinds of services were: Teaching a patient or family member, carrying out a nursing procedure, and Supportive Health Supervision; the least frequently requested services were giving General Nursing Care or Evaluating a Home Situation. On the whole, the services requested were in accord with what an independent observer might expect on the basis of the patients' ages and diagnoses, which tended to be the chronic diseases, in patients over the age of 60.

Table 1—The Kinds of Services Requested

Services	Number
General Nursing Care bath, diet, help with setting up a daily regimen, etc.	49
Teaching Members of a Family How to give general nursing care or do a specific nursing procedure	97
Doing a Procedure giving an enema giving an injection changing a dressing irrigating a catheter teaching crutch walking giving physiotherapy, etc.	163
Evaluating a Situation accident hazards suitability for home care	46
Teaching and Supportive Health Supervision to a newly diagnosed patient, for example, one with diabetes or rheumatic fever or maternal or infant care supervision or geriatric supervision or teaching of nutrition	178
Total services	533
Total patients	184

After visiting the home to perform the requested services, the public health nurse returned a copy of the referral to the clinic which had initiated the request. On it she included her own report. This information was then permanently incorporated in the patient's hospital record.

Such a procedure has interesting implications, for perhaps the most important part of the background of a public health nurse is her trained knowledge of people in the community and of the difficulties which they face from time to time. It is her business to know not only the common health problems, but also to recognize the emotional and family difficulties often associated with illness. She ordinarily knows what constitutes normal behavior in various situations and normal development at various age levels. She realizes that the psychological environment of a patient is often more important than his physical surroundings. She has been trained to watch for and report the facts about a patient's condition and attitude. She sees firsthand that he may often be too apathetic to give more than the exact amount of information asked for.

Thus in addition to carrying out specific requests from hospital staff members, the public health nurse—who is a trained observer—can often appraise the situation of the patient and the family and reliably report previously unknown findings to the referring group. That this occurred in the 184 reports studied is made clear in Table 2 which shows that public health nurses brought some 400 separate items of significant new information to the attention of the hospital staff by means of their return reports. (That these items were indeed new was ascertained by examining the

Table 2—New Items of Information Supplied by the Public Health Nurse

New Information About	Number of Items
Patient's physical condition	109
Mental or emotional condition	91
Medications taken by patient in error or inconsistent with doctor's orders	57
Social problems of patient	55
Impact of patient's illness on another family member	31
Cultural (or other) beliefs influencing acceptance of care	26
Health problems of another family member	23
Other sources of medical care	4
Total items	406
Total patients	184

patients' hospital charts, where no record of the information described was found.)

As Table 2 demonstrates, the new information supplied by the public health nurse often identified previously unrecognized physical symptoms, and many mental or emotional problems were first picked up this way. Some social problems were referred to the social service department for action after having been reported by the public health nurse. Health problems of another member of the household were also occasionally brought to the hospital staff's attention, and many of these persons then came under the hospital's care.

Another category of new information, related to the impact of the patient's illness on other members of the family, was frequently later reflected in the physician's plan of care.

The material just covered deals with some aspects of a job well done in providing more effective patient care. Thoughtful readers may wonder whether the study also uncovered any defects or blocks in the communication system. It did. These fell generally into two categories.

First, there were such patient's problems as poor adherence to diet, or confusion about medications described in the hospital charts with which the public health nurse might have been helpful, but which were not mentioned by hospital physician or nurse in the original referral. This occurred in the case of 53 patients. A total of 101 problems in this category, which had not been mentioned in the referral, were identified in an analysis of both referrals and charts by nurses with public health experience. In 25 instances some discrepancy was noted between the orders written on the interagency referral and the orders written in the chart.

Second, sometimes direct requests for specific information, initiated at either end of the line of communication, went unanswered. The hospital was particularly negligent in this respect, ignoring the public health nurses' questions frequently. (Out of 87 requests from the public health nurse, the hospital answered 43.) The community agencies did better, but they also ignored the direct question about a fifth of the time, although they invariably returned a written reply with other significant information on it. More particularly, the hospital made 83 requests for specific information; it received the answer sought in 67 of the cases, and remained without the information in 16 instances.

It would seem that case conferences which highlighted these "communication roadblocks" might be used as a basis for useful staff education programs in both hospital and community agency with profit to the patient. Whatever the remedial procedure, however, there can be no doubt that efforts should be made to reduce and eventually eliminate communication difficulties in the use of referral forms.

In summary, a 50 per cent sample of the referrals for public health nursing services initiated in the General Medical Clinic of the New York Hospital over a one-year period was studied. This study of 184 referrals attempted to assess both quality of communication in the referrals and the public health nurse's usefulness to patients as a result of the referral. Patients were found to be referred for a variety of services. Reports returned by the public health nurses included a considerable body of important information not previously recorded in the patients' charts; the new information dealt directly or indirectly with the patient's ability to function. Shortcomings in communication were found in two specific areas. There were rare instances in which incorrect orders were sent to the public health nurses initially, and more commonly, in which the public health nurse might have been asked to help with a particular problem but was not so requested. Another not infrequent shortcoming consisted of failure to answer specific requests for information. This occurred at both ends of the line, but was more characteristic of the hospital staff than of the community nurses.

Since this study was confined to a sample group of referrals which had actually been initiated, no information was obtained on an additional question which requires study—the benefits which might have accrued to other selected patients in the clinic had they been thought of as candidates for referral. A study of the nursing needs of this latter group of patients is currently being conducted in this clinic, under a grant from the Division of Nursing Resources of the U. S. Public Health Service. Through it, we are coming to recognize that if physicians and nurses are to assume greater responsibility for providing continuity of nursing and patient care, then skills in analyzing, evaluating, and summarizing their appraisals will require some attention.

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This paper was presented before the Medical Care Section of the American Public Health Association at the Eighty-Seventh Annual Meeting in Atlantic City, N. J., October 20, 1959.

The attitudes of 64 public health nurses in one voluntary and two official agencies were studied to test the hypothesis that public health nurses tend to prefer patients with social class backgrounds like their own. The findings do not bear out the hypothesis in some instances, but they do reveal that nurses have preferences in patients related to social class.

THE SOCIAL CLASS OF PATIENTS THAT PUBLIC HEALTH NURSES PREFER TO SERVE

Charles V. Willie, Ph.D.

THIS PAPER presents an analysis of data on the social class of patients that public health nurses prefer to serve. The idea for this analysis grew out of a study conducted by Myers and Shaffer at the Yale Psychiatric Clinic on the social class of patients accepted for treatment. They found that "the higher an individual's social class position, the more likely he was to be accepted for treatment."[1] In another article interpreting this finding, Auld and Myers suggested that middle-class psychotherapists find it more difficult to be sympathetic with and genuinely interested in patients of the lower class than with patients in the middle class.[2]

It is generally assumed that nurses make no distinction among their patients as to social class and rank in rendering professional services. Mulaney and Sayles have stated that "[nurses] are identified as members of a profession which is recognized for accepting and appreciating persons on individual merit."[3] But Virginia Barckley, in the description of her encounter with Lucy, a prostitute, has presented contradictory information. "If you think that even a public health nurse, who sees so much of people down where they are growing, finds it easy to establish a relationship with a prostitute who is crude, rough, dirty, ignorant, abandoned and determined to remain so, you are wrong," she said. Miss Barckley further stated that the experience "was especially unsavory" for her as she is interested in the "theatre, the 'Saturday Review,' the turn of a phrase."[4]

Theoretically, nurses are accepting of all patients irrespective of their social class positions. Practically, working with some social classes may present an unsavory experience. It is not uncommon to find discrepancies between beliefs that are held in general and those that are held in specific instances, between the theoretical and the practical, between the so-called "ideal" and "real" cultural patterns of a society. This fact is well documented by Robert Lynd in his book titled "Knowledge For What?" "As one begins to list the assumptions by which we Americans live," Lynd has pointed out that "one runs at once into a large measure of contradiction and resulting ambivalence."[5] "Inconsistency

exists in all systems of belief, . . ." according to Alexander Leighton. He further observed that the inconsistency is "more easily seen in the stranger than in ourselves."[6]

The purpose of this study was to determine if public health nurses had varying preferences for patients by social class. It was hypothesized that public health nurses tend to prefer patients with social class backgrounds similar to their own.

Nursing administrator Mary Jones has written that pertinent information about the district for which a supervisor is responsible can help her plan her work.[7] To this statement we would like to add that pertinent information about the staff nurses, including their attitudes and ideas, can help a supervisor to better evaluate nursing performance. This study was designed to provide information about the nurses rather than the settings or situations in which they worked.

Data and Method

The investigation was conceived as a pilot study; and thus, the numbers of nurses interviewed are insufficient for generalizations about public health nursing outside the study area. There are indications, however, that the regularities found in this community may exist in others. Hence, these data are presented so that they may be used by other investigators in a comparative way.

Another limitation of this study is that no information was obtained on the social characteristics of patients whom public health nurses actually serve. Whether or not preference for patients of specific social classes is a result of experience or the lack of experience in working with individuals of varying class positions is a problem worthy of investigation. Studies of the American soldier have shown that one may prefer a particular kind of situation simply because one has not experienced another.[8] On the other hand, one may elect to experience only that which one prefers. In a western New York State community, for example, it was discovered that a greater proportion of nursing visits in one district were to individuals under five years of age, although there was a high concentration of older people in that district, too. Investigations by the supervisor revealed that the nurse assigned to that district "liked to work with children [and] apparently did not see the problems of the aging in her area."[9] It is highly probable that preferences expressed by some nurses in this study were due to the absence of experience with patients of differing social classes, while other preferences were, indeed, attitudes based on experience of greater satisfaction derived from working with one social class than with another.

Although a limitation (to which attention will be given in the broader investigation succeeding this pilot study), the absence of information on the social characteristics of patients whom nurses served does not negate the value of these results. For it is important to identify the specific attitudes that are held and to define the category of nurses holding such attitudes.

The study was conducted in November, 1957, in the Syracuse Standard Metropolitan Area which consists of Onondaga County, including the city of Syracuse, New York. The metropolitan area had a population of 394,802 in 1956.

The study population consisted of registered staff nurses in three public health agencies: the Bureau of Nursing in the City Health Department, the County Public Health Nursing Service which serves the metropolitan area outside the city, and the Visiting Nurse Association—a voluntary agency. School nurses were omitted because their con-

tacts are limited largely to families with school-age children. Nurses connected with industries were not included because the "emphasis of industrial nursing service [has] changed from visiting-nurse service in the home. . . ." The industrial nurse is concerned with first aid, accident and sickness prevention programs, and selective job placement. Home visits are only a limited aspect of her broad range of activity.[10] The sample was restricted to public health nurses associated with official and voluntary agencies that provide a generalized nursing service, because they—unlike hospital nurses—often supervise the care of patients in homes. In the hospital, a patient is "largely stripped of the symbols and signs of his normal roles [and] is seen in an artificial setting far from his usual habitat."[11]

Public health nurses visit patients in homes in the highest and in the lowest socioeconomic areas of this community. The community is divided into districts, the boundaries of which correspond to those of census tracts. These districts include all census tracts in the community. A nurse is assigned to each district. Although public health nursing service is provided for patients in districts of varying socioeconomic status, several nurses have had limited experiences with some status categories since there is no established practice of rotation from district to district. As a collectivity, the public health nurses of this community have had the experience of caring for patients in all social classes; but as individuals, some have not.

Of the 67 full-time staff nurses eligible to participate in this study, 64 were interviewed. Two were unavailable because of illness, and one refused to participate. This proportion was 95 per cent of all registered staff nurses in agencies that provide a generalized nursing service available to all persons in the community.

Data were obtained by public health nursing students who had been trained in survey interviewing technic. Each staff nurse was interviewed by a nursing student at the place of employment in private conference rooms provided by administrators. Interviews lasted approximately 30 minutes. Responses were recorded on a schedule composed of predetermined categories. Also recorded were comments sometimes voluntarily given by the interviewee to explain a particular preference. Respondents were informed that all information given was confidential. As a precautionary measure undertaken to insure confidentiality, names of staff nurses were not recorded on interview schedules.

In testing the hypothesis stated above, it was necessary to identify the social class of each nurse to determine if her preferences were for patients of a class position similar to, or different from, that of her own. Three different indicators of social class were used: (1) Census Bureau occupational classification; (2) the nurse's perception of the social rank of public health nursing; and (3) the occupational status of the nurse's family of orientation. These were indicators of the nurse's achieved, perceived, and ascribed social class. The patient-preferences of public health nurses were analyzed in relation to each of these three social class indicators.

Findings

Of the 64 nurses interviewed, 53 preferred patients in middle- or lower-social classes; none preferred to serve the upper class. Eleven stated that they had no preferences.

As seen in Table 1, most of the 53 nurses preferred patients in only one social class; 30 preferred middle-class patients only; nine preferred lower-class patients only; and 14 preferred patients in both of these class categories. Al-

though no one preferred to serve upper-class patients, there is reason to believe that the omission of this social class is not entirely due to lack of experience in working with such patients. For the whole metropolitan area is divided into nursing districts, and some, though not all, public health nurses have worked in districts that include upper-class families. A few nurses stated that they had served upper-class patients.

The Census Bureau classifies registered nurses as professional workers.[12] As social class has been described by Warner[13] and Hollingshead,[14] public health nurses have achieved middle-class rank in the stratification hierarchy of American society. According to Richard Centers, "the middle class is a business, professional, and white-collar group. . . ."[15] Hence, the fact that approximately four out of every five nurses who indicated preferences included middle-class patients among those whom they would prefer to serve affirms the hypothesis that most public health nurses tend to prefer patients with backgrounds similar to their own. In explaining her preference one nurse said, "The middle-class are more like oneself; one can understand them a little better."

An attempt was made to learn of the nurse's perception of the social rank of her occupation with the following question: "If you were asked to evaluate the status of public health nursing as a profession, would you say that it is a lower-class, lower middle-class, upper middle-class, or upper-class job?" Nearly three-fourths of the nurses who responded to this question ranked public health nursing as a middle-class profession; and about one-fourth placed it in the upper class. None considered their profession to be of lower-class rank. These findings are similar to those reported by Centers, which were based on a representative cross-section of the adult male population. He found that about three-quarters of the business, professional, and white-collar respondents say they belong to the middle class.[16]

Factors other than income apparently influenced the perceptions of those who saw their profession as an upper-class occupation, because the median annual salary in 1956 for public health staff nurses in voluntary and official local health units was $3,404 and $3,828, respectively.[17,18]

In testing the hypothesis stated above in relation to the nurse's perception of the social class of her occupation, 13 of the 64 respondents were eliminated from the study either because they were uncertain of the social class of public health nursing or because they had no expressed preference for patients by social class.

Of the 51 nurses used in this analysis, 38 ranked their profession in a middle-class position, and 13 look upon public health nursing as an upper-class occupation as shown in Table 2. Of those who ranked their profession in the upper class, none preferred to serve upper-class patients; they preferred patients in either the middle or lower classes. Of the 38 who ranked their profession with the middle class, 18 preferred middle-class patients only, 11 preferred to serve middle- and lower-class patients, and 9 preferred lower-class patients only. When the social class perceptions of all 51 nurses were combined, a small majority

Table 1—Social Class of Patients That Public Health Nurses Prefer to Serve, Syracuse Metropolitan Area, 1957

Social Class of Patients Preferred	Number of Nurses
Upper class only	–
Middle class only	30
Middle and lower classes	14
Lower class only	9
No preference	11
Total	64

Table 2—Social Class of the Public Health Nursing Profession as Perceived by Public Health Nurses, Syracuse Metropolitan Area, 1957

Social Class of Nursing Profession	Number of Nurses
Upper	16
Upper-middle	36
Lower-middle	5
Lower	–
Uncertain	7
Total	64

of only 29 preferred to serve patients with social class backgrounds similar to their own; and about one-third of these respondents preferred patients of a different, as well as the same, social class. The different social class was always lower than the nurse's own perceived social position. On the other hand, a rather large minority of 22 preferred to serve only those patients with social class backgrounds different from that of the nurse; in all instances, these nurses preferred patients who occupied class positions beneath that of their own perceived social class. Almost as many nurses preferred to serve patients with social class backgrounds different from that of the nurse as those who preferred patients with social class background the same as their own perceived social class. Hence, the nurse's perception of the rank of her own social class appeared to have little, if any, association with her preference for patients.

These findings indicated that variation existed in perceptions of the social rank of a specific job, even among individuals of the same profession who performed similar occupational roles. These findings also suggested that one's objective or achieved social position was more strongly related to his attitude about the social class of patients preferred than was one's perceived social rank. Even Centers, who strongly defended propositions pertaining to the association between class identification and attitude, has said that "the person's occupational stratum is an even better index of his attitude than is subjective class affiliation."[19]

Although little association was demonstrated between the nurse's perception of the social class of her profession and her preference for patients by social class, the nurse's perception of her profession did appear to be related to the social class of patients whom she did not prefer to serve.* This observation is inconclusive because of small numbers in the upper-class perception category. Nevertheless, a pattern was seen: Four-fifths of the public health nurses who ranked their occupation in an upper-class position preferred to serve non-lower-class patients, while less than half of those who saw their profession as middle class preferred to serve non-lower-class patients.

Both achieved social class, and one's perception of her social class appeared to be related to attitude, though in a somewhat different way. Centers recognized this fact, although he did not specify the differential ways in which achieved and perceived social class are related to attitude. He stated, "if we know a person's occupation we can predict something about his attitude from that knowledge alone, and if we know only his class identification we can also predict something about attitude; but if both occupation and class identification are known, our predictions of his attitude

* Information about the social class of patients whom nurses did not prefer to serve was inferred from the replies about patients whom they preferred. These inferred data must be accepted with caution since the nurses were not asked directly to indicate the class of patient whom they would prefer not to serve. But the inferred data merit analysis since each nurse was informed that she could indicate preference for one or more social classes. Some had multiple preferences and stated them. Some stated that they had no preference.

can be even more definite."[20] As seen in this analysis, objective or achieved social class appeared to be related to attitude of what one would prefer, while subjective or perceived social class appeared to be related to attitude of what one would not prefer. This observation, of course, is tentative until tested further in a larger population.

Another serendipitous finding of the analysis thus far has to do with nurses who preferred patients of social classes that were different from their own achieved social position. Of the 23 respondents who registered a preference for patients of a different achieved social class, 9 preferred the lower class only, while 14 preferred to serve both the middle and lower classes. None preferred upper-class patients. These data indicated that only the lower class was preferred by nurses who would serve patients of a social class different from that of their own achieved social class. In the hierarchy of social stratification, public health nurses preferred to render their services across and down but not up to patients.

Approximately one-fourth of the nurses voluntarily gave explanations of their preferences. Their statements about lower and upper classes were reviewed in an effort to understand why public health nurses chose only the lower class when patients of a social class different from their own were preferred. Respondents said the following about the lower class: "I feel the middle and lower classes are more in need and I would rather work with them. . . ." "The lower and middle classes need most care. . . ." "Poor people need to be helped. . . ." "I have had no actual experience with other classes. . . ." "The lower class is sometimes more perceptive. . . ." "You get more job satisfaction working with the middle and lower classes. . . ." "I feel that the lower class are much more interested, dependent, and receptive of your teaching. I like the lower income group better. . . ." "Lower class does not recognize problem. . . ." "Lower class is where most effort is needed. . . ." "There is more of a need in the middle and lower groups, especially the lower." Only five nurses commented about the upper class, and their statements were as follows: "Rich people can afford to have their own doctor and get an education because their economic situation will permit it. . . ." "I wouldn't care to have a 100 per cent upper-class district but I wouldn't mind a few such families. . . ." "Upper class does not have as many physical problems (health). . . ." "I feel that I am treated like a maid by the upper class. . . ." "Upper group misunderstand role of public health nurse—think it is more of a charitable type thing." There were too few explanations, especially with reference to the upper class, to develop firm conclusions from an analysis of these data. However, the weight of evidence seemed to suggest that most public health nurses tended to prefer the lower class, because they felt the patients of that social class had greater need for their services. The data were insufficient to suggest why upper-class patients were not preferred.

Finally, the hypothesis that public health nurses tend to prefer patients with backgrounds similar to their own was tested in relation to the nurse's ascribed social class. Ascribed social class was determined by the occupation of the nurse's father or mother, if the latter were head of the household. It is a fundamental characteristic of the system of social stratification in this society that the initial social class of the offspring is that of its family.[21] For this reason, the social position of one's family of orientation is identified as one's ascribed social class.

As indicated in Table 3, 32 of the public health nurses in this study grew up in families in which the head was a manual worker, while 28 came from

Table 3—Occupational Status of Public Health Nurse's Family of Orientation, Syracuse Metropolitan Area, 1957*

Occupation	Number of Nurses
Professional workers	17
Managers, officials, and proprietors	7
Clerical and sales workers	4
Craftsmen, foremen, and kindred workers	18
Operatives and kindred workers	4
Service workers	3
Laborers	1
Farmers	6
Occupation not specified	4
Total	64

* Occupational status was determined by job of head of household. Fifty-eight of the households were headed by fathers and three by mothers. Information on head of household was not given by three respondents.

families of white collar occupational status. In fact, a majority of the public health nurses were about evenly divided between families either of professional or skilled workers. Occupational status of family of orientation for the remainder were scattered among six other categories.

There was no demonstrated association between the ascribed social class of the nurse (as indicated by the job of her father or mother) and her preference for patients by social class. When intercorrelated, these two variables yielded a Pearson coefficient of -0.10 which was not statistically significant. A majority, or six out of every ten public health nurses from working-class families, preferred middle-class patients only, while a slightly smaller proportion of five out of every ten nurses from white-collar families preferred middle-class patients only. Most nurses in the remainder of these two categories preferred middle- and lower-class patients, a few preferring only the lower class. Again, the proposition that objective or achieved social class is principally related to attitude about the social class of patients preferred is supported by this analysis. Middle-class patients were included among those preferred by more than four-fifths of the nurses who grew up either in white-collar or working-class families. The occupational status of the nurse's family of orientation appeared to have little, if any, effect upon her preference for patients by social class. Hence, we must cast doubt on the hypothesis that public health nurses prefer to care for patients with backgrounds similar to their own ascribed social class.

There was a minimally significant relationship between ascribed and perceived social class of public health nurses. About 10 per cent of the variance in their perceived social class could be attributed to ascribed social class. Intercorrelated, these two variables yielded a Pearson coefficient of -0.33, indicating that the association was inverse. Nurses of lower ascribed social class tended to identify their profession as having higher social rank than did nurses of higher ascribed social class. In other words, the proportion of nurses from working-class families who ranked their profession as upper class was twice as great as the proportion of nurses from white-collar families who had similar perceptions of public health nursing. As mentioned earlier, the number of respondents who considered their profession to be upper class was small (only about one-fourth of the total); and small also was the magnitude of the coefficient of correlation between ascribed and perceived social class. Nevertheless, this association is pointed out because of its possible relationship to an earlier finding; namely, that subjective or perceived social position was associated with the social class of patients whom nurses would not prefer to serve.

The following analysis is based upon the responses of 49 nurses for whom

there was complete information on their ascribed and perceived social class, as well as their preference for patients by social class. The family of orientation for 26 of these respondents was working class, while 23 grew up in white-collar families. About one out of every three nurses from working-class families tended to look upon her profession as having upper-class rank; most of those who held such perceptions tended to prefer patients of a social class position other than the lower class. Hence, it would appear that some public health nurses who grew up in working-class families preferred to avoid those kinds of patients. Approximately three-fifths of the nurses of working-class family background preferred patients other than lower class, while only about half of the nurses from white-collar families had similar preferences. On the other hand, about four out of every ten nurses from working-class families preferred to care for patients in the middle and lower classes, a few of these preferring lower-class patients only. It should be noted, however, that only one-fifth of these respondents identified public health nursing as an upper-class profession, while better than two-fifths of the respondents from working-class families who preferred patients other than lower class thought that public health nursing was an upper-class profession. Because of the small numbers on which these observations are based, they must be labeled tentative until they are investigated further. In the meantime, the evidence at hand suggests the following hypothesis: that public health nurses of lower ascribed social status who look upon their profession as occupying a position of high social rank tend to prefer patients other than lower class.

The hypothesis stated above is consistent with established social psychological theory regarding social mobility. Aspiration for upward mobility in the hierarchy of social stratification has been found to coexist, sometimes, with an attitude of rejection directed toward the group or category of people from which one has moved or would like to move. These attitudes might coexist particularly when characteristics of the group of origination are viewed as liabilities to one's aspiration for upward social mobility. According to Kurt Lewin, "to gain status is one of the outstanding factors determining the behavior of the individual in our society."[22] Lewin illustrated this principle with the story of a girl at a fashionable midwestern university who confided that "she had told her friends that her parents were American-born, although actually her father is a first generation immigrant from . . . [Eastern Europe], speaking with a strong accent. . . ." Lewin explained the girl's behavior in the following manner: "The individual has certain expectations and goals for the future. Belonging to his group is seen as an impediment to reaching those goals. This leads to a tendency to set himself apart from the group."[23] Lewin discussed the feelings and actions of the student in this story as a phenomenon of self-hatred. It is beyond the scope of this study to determine the extent of such feelings among nurses. But the data at hand suggest that a few public health nurses now of the middle class who grew up in working-class families may be experiencing this phenomenon which, in turn, may have resulted in preferences to avoid patients with backgrounds similar to their own ascribed social class.

Summary and Conclusions

The attitudes of 64 public health nurses in one voluntary and two official agencies were studied. Tested was the hypothesis that public health nurses tend to prefer patients with social class backgrounds similar to their own. This hypothesis was tested in relation to the

nurse's achieved, perceived, and ascribed social class. Used as indicators of these class positions were Census Bureau occupation classification, the nurse's subjective assessment of the social rank of her profession, and the occupational status of the nurse's family of orientation.

The following conclusions were derived from this analysis:

1. Public health nurses tend to prefer patients with background similar to their own achieved social class.
2. Public health nurses prefer to render their services across or down, but not up to patients in the stratification hierarchy of social classes.
3. A tentative observation, pending further investigation, is that perceived social class is related to attitude about the social class of patients whom nurses would not prefer to serve.
4. Doubt was cast on the hypothesis that public health nurses tend to prefer patients with backgrounds similar to their own perceived or ascribed social class.

An hypothesis derived for future research is that public health nurses of lower ascribed social status who look upon their profession as having high social rank tend to prefer patients other than lower class.

Discussion

This study has demonstrated the existence of inconsistency in the belief system of the nursing profession. Attitudes that nursing service should be available to all in need of it regardless of class or social position coexist with attitudes of preference for patients by social class.

Inconsistency in the belief system of a profession is, of course, not unique with nursing. In fact, one source of inconsistency in the belief system of nursing is common to all social systems; it is the phenomenon of continuous change. Lynd has stated that overlapping attitudes which may have developed in different eras "tend to be carried over uncritically into new situations. . . ."[24] Also, the fact that ours is an open class society with opportunity for individuals to achieve class positions different from that of their family of orientation is another form of change which contributes to inconsistency in belief systems.

Davis, et al., found that "members of any one class or subclass share the same general attitudes and beliefs. . . ."[25] Hence, vertically mobile people carry with them into another social class some of the attitudes and beliefs of their previous conditioning which must be assimilated into the existing belief system of the social class into which they have entered. Inconsistency often emerges in the process of assimilation. The presence of inconsistency, therefore, is a natural characteristic of any rapidly changing open-class social system.

Ridding a belief system of inconsistencies is a continuous process. As old ones are resolved new ones may emerge. The inconsistency of one moment may not be that of another.

This analysis revealed that middle- and lower-class patients were preferred by members of a profession which supposedly makes no distinction by social class in rendering services to individuals in need of nursing care. An attitude that there should be no preference for patients by social class and the presence of an attitude of preference are inconsistent. In general, nurses preferred middle-class patients because they felt they had common interests with them and could understand them better; they also preferred the lower class because they felt these patients were in greater need of help. No preference was stated for upper-class patients.

Of the several possible approaches which may aid in resolving the inconsistencies stated above, two will be discussed. It seems that there is a need to develop a greater awareness of those common interests and activities among human groups that cut across class lines.

This approach was suggested in the writing of Virginia Barckley, a public health nurse, who cared for a diseased and abandoned prostitute. As Miss Barckley has written: "Lucy's only vulnerable spot was her children and my visits were, ostensibly, for the supervision of their health only. . . . It wasn't easy to get on with Lucy. . . . But we had one small area of agreement. Lucy loved children, and so did I. Strange cats in an alley we were, but we recognized that one common quality. Through this one wedge, each of us broadens her liking for the other. . . ."[26]

Malinowski, the cultural anthropologist, has cautioned against the great temptation to overlook the obvious and to overemphasize the strange and exotic, the sensational and "queer."[27] Beneath the strange and shockingly different ways of thinking and doing things in family groups of social classes different from our own are many activities and attitudes common to our own which, if recognized, could facilitate the coming together of persons of diverse backgrounds and increase their understanding of each other.

It seems also that a more flexible definition of the needs of patients is required, especially if public health nursing is to be available to all, including the upper class. While it is true that lower-class patients are in great need of help, the upper class, too, has nursing needs. The problems of patients are often related to their circumstances of life. Hence, needs of patients may vary by social class. It is important to recognize the different kinds of nursing needs required by different kinds of patients in different social classes. In a lower-class family, the problem may be one of sanitation,[28] while in an upper-class family it may be one of insufficient information.[29] Both families have problems and need help.

At once, what has been said may appear contradictory. On the one hand, it has been suggested that we search for the similarities that exist in all human groups, while on the other, it has been recommended that we vary our approach to accommodate the differing customs of human groups. These two recommendations for resolving inconsistency need no defense. Each justifies the other. It is important to recognize similarities in the different and differences in the similar. The two approaches are complementary.

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Epidemiology and Control of Zoonoses

The Fifth CDC Biennial Conference for Public Health Veterinarians and Teachers of Preventive Medicine will be held September 12-17, 1960, at the new facilities of the Communicable Disease Center in Atlanta, Ga.

Meeting concurrently will be the Associations of State Public Health Veterinarians and Teachers of Veterinary Preventive Medicine and Public Health.

The major portion of the program will be devoted to the epidemiology and control of the more important animal diseases transmissible to man. Other sessions will encompass the newer developments in veterinary public health, such as mastitis, meat hygiene, comparative epidemiological investigations, and laboratory animal diseases.

Further information from Public Health Service, Communicable Disease Center, 50 Seventh St., N.E., Atlanta 23, Ga.

CDC is also offering a series of Laboratory Refresher Training Courses during the period October 10, 1960-April 7, 1961, each running from one to four weeks in length. The first offering is "Fundamentals of Virology," to be followed October 31-November 11, by "Laboratory Methods in the Diagnosis of Tuberculosis." A listing of the 13 courses scheduled, plus the eight "given by special arrangement only," and application information from the Laboratory Branch, CDC, Atlanta 22, Ga.

Knowledge of food service problems and needs is necessary to plan useful nutrition education programs for nursing home personnel. The Milwaukee Health Department has conducted a preliminary survey to learn the food purchasing practices of proprietary nursing homes and the food intakes of selected patients. The results indicate the need for an educational program stressing the importance of nutrition in the total care of the patient.

SURVEY OF FOOD SERVICE PRACTICES IN NURSING HOMES

Jean H. Hankin, M.S., F.A.P.H.A., and Jean C. Antonmattei, M.D., M.P.H., F.A.P.H.A.

THE CARE of chronically ill and aged individuals requires specialized knowledge and skills. An important segment of this background is an understanding of the role of nutrition as related to health and the ability to apply this information to the planning, preparation, and serving of the daily meals. To develop meaningful nutrition education programs for individuals caring for the chronically ill, the Milwaukee Health Department felt it would be valuable to survey current food service practices in nursing homes located in Milwaukee.

With the financial and technical assistance of the Chronic Disease Program of the Public Health Service, the Health Department designed a four months' study in February, 1958, to obtain data in the areas of food purchasing and food consumption in a sample of nursing homes. The initial aims of the survey were to learn whether sufficient amounts of foods were purchased to meet the National Research Council's Recommended Dietary Allowances and whether the daily meals of selected patients provided adequate amounts of nutrients. An additional objective was to gain a picture of the factors which influence food acceptance by nursing home patients.

Design of Survey and Methods

A one-week period was regarded as the minimum time for obtaining food purchasing data and determining the average daily availabilities of foods. With one week allotted to each nursing home, only a limited number could be covered in the four-month period.

Within Milwaukee there are 75 nursing homes and homes for the aged, all licensed by the Health Department. For the sample, proprietary homes with 11 or more patients were arranged alphabetically and every third home was selected. The administrators of the resulting 15 homes were contacted by the nutritionist to secure their cooperation, explain the purpose of the survey, and describe the methods to be utilized. Two of the 15 homes did not participate in the project. One administrator refused, indicating that the study would upset

the cook. Subsequently another home was eliminated as the operator planned to be away from the city during the study. The remaining 13 homes were the institutions which participated in the survey.

The Health Department employed Mrs. Margaret Krauser, a qualified dietitian, to obtain the necessary data. At the initial visit to each home, the dietitian was accompanied by the public health nurse, one of two assigned exclusively to the visiting of nursing homes. Approximately ten days prior to the survey of each home the nutritionist again called the administrator, reiterated the purpose and procedures, and indicated that the study would commence on a Monday or Tuesday during the ensuing two weeks. When necessary, dates were changed to oblige the homes. The nursing home personnel were assured that names would not be utilized in the report and that the value of the findings was related to the total picture, not to the individual homes per se.

The 13 homes ranged from 12 to 54 inpatient capacity. One home was licensed for ambulatory patients only; all others cared for both bedridden and physically active individuals. Two homes accepted only male residents, three were limited to females, while both sexes were represented in the remaining eight homes. There were three two-building homes; food service was centralized, however, with most of the food preparation and service emanating from one main kitchen.

The 13 homes housed 356 patients or approximately 18 per cent of the 2,000 men and women living in the city's nursing homes and homes for the aged.

In addition to determining whether an adequate diet was provided, the Health Department wanted to learn if the available foods were being consumed and if eating patterns were influenced by any specific factors. To fulfill these objectives in the one-week period, five patients in each home were selected for individual studies. On the initial visit to the homes, the public health nurse and nursing home administrator chose the subjects utilizing a few simple criteria. Excluded individuals were: (1) those on prescribed therapeutic diets; (2) patients whose physical condition rendered it impossible to eat a regular diet; (3) those unable to feed themselves, except hemiplegics; and (4) senile individuals unable to communicate.

The dietitian observed the five patients at regular meal periods for three consecutive days, recorded the amounts of foods eaten, and interviewed the subjects at the serving hours.

The 65 patients in the survey represented a heterogeneous group, and multiple factors could have affected the eating habits of each of the individuals. Ages ranged from 41 to 91 years, with 47 in the "70 to 89" bracket. The sex distribution was 42 females and 23 males. Twenty-six subjects were bedridden while 39 were ambulatory. The patients' records in the nursing homes revealed a wide variety of medical diagnoses, the most frequent being cerebral vascular accidents and heart diseases.

Collection of Data

To obtain the necessary data for analysis, a standard procedure was followed in each of the 13 homes.

Availabilities of Foods and Nutrients

On the first day of the study, the dietitian took an inventory of the foods on hand and grouped the items according to the U. S. Department of Agriculture's 11-food group plan.[1] The administrator of the home or the cook was asked to record the items purchased and delivered each day of the week. The following Monday or Tuesday the dietitian conducted a second inventory and determined the net amounts of each food

group utilized in the seven-day period. With these data, along with the numbers of patient and staff meals, the weekly and daily availabilities per capita were computed for each food group. The average daily availabilities of calories, protein, calcium, vitamin A, and vitamin C were calculated, using the revised tables developed by the USDA.[1,2]

Individual Patient Intakes

The three-day food intakes were analyzed for calories, protein, calcium, vitamin A, and vitamin C, using the "Short Method of Dietary Analysis" developed by Leichsenring and Wilson.[3] Average daily nutrient intakes of each patient were compared with the respective per capita daily availabilities and to the recommended dietary allowances according to the pertinent age and sex classifications, as published by the National Academy of Sciences[4] and as adapted by LeBovit and Stiebeling.[5]

Food Habits of Patients

The dietitian conducted a minimum of three interviews with each patient. At least one breakfast, one dinner, and one supper meal were covered during the three days. When feasible, information was obtained about food likes and dislikes, reasons for items being preferred or avoided, appetite, interest in eating, snack consumption, and ease of chewing.

Results

Availabilities of Nutrients

Knowledge of the total quantities of foods used is one way to evaluate the food purchasing practices of an institution. The average daily nutrient availabilities of the foods utilized in the 13 homes have been arranged in descending rank order in Table 1. The data indicate that there was no uniformity in the food availabilities within any of the homes. For example, home "M" ranked highest in calories, protein, and calcium, ninth in vitamin A, and tenth in vitamin C. Home "E" showed very high availabilities of vitamins A and C; calories and calcium were at the median point; and protein was represented as number five in the table.

It is very conceivable that the actual nutrient availabilities were less than the figures cited in Table 1. Losses in food preparation and unequal distribution of foods among patients and employees could not be determined. If the administrator prepared foods for her family within the nursing home, it is reasonable to assume that some items designated for patients could be consumed by the family group. In addition, with most food establishments, employees are prone to snack when not being supervised.

The vitamin C values in Table 1 become more significant if the figures are higher than the actual availabilities. According to the inventories, six of the homes were not providing sufficient quantities of vitamin C-rich foods. The data concerning the availability and the subjects' intakes of vitamin C within the individual homes were compared and have been summarized in Table 2.

A significant lack of correlation between the two sets of data is revealed. Although seven homes appeared to be purchasing adequate amounts of vitamin C-rich foods, only ten of the 35 subjects in these homes met the recommended allowances. Technically one would expect that the 30 subjects in the homes with deficient inventories would have inadequate vitamin C intakes. However, according to the three-day food records, 16 received the recommended amounts of vitamin C.

Generally three factors appeared to cause the differences between the availabilities and the intakes, the most significant being that the inventory was based on a seven-day period and the intakes were ascertained for only three days.

Table 1—Per Capita Availability of Nutrients (as Purchased) in 13 Nursing Homes*

	Calories	Protein (Grams)	Calcium (Grams)	Vitamin A (I. U.)	Vitamin C (Mg)	
	2,945 (M)	98 (M)	1.3 (M)	9,855 (D)	105 (K)	
	2,942 (D)	92 (C)	1.1 (D)	9,744 (E)	101 (E)	
	2,939 (B)	90 (D)	1.1 (B)	8,391 (J)	98 (J)	
	2,891 (A)	82 (K)	1.0 (L)	7,097 (K)	88 (D)	
	2,579 (C)	82 (E)	1.0 (K)	6,759 (B)	87 (C)	
	2,456 (I)	80 (B)	1.0 (I)	5,515 (A)	82 (A)	
Median	2,413 (E)	79 (A)	1.0 (E)	5,513 (C)	73 (B)	Median
	2,330 (K)	78 (I)	1.0 (C)	4,829 (G)	67 (L)	
	2,218 (J)	70 (J)	1.0 (A)	4,626 (M)	65 (H)	
	2,188 (L)	68 (G)	0.9 (J)	4,463 (I)	62 (M)	
	1,910 (H)	67 (L)	0.9 (G)	4,444 (L)	60 (I)	
	1,898 (F)	62 (H)	0.8 (H)	4,281 (F)	55 (F)	
	1,741 (G)	58 (F)	0.6 (F)	3,532 (H)	49 (G)	
Range of Availabilities	2,945–1,741	98–58	1.3–0.6	9,855–3,532	105–49	
Average Availabilities	2,419	77	0.98	6,081	76	
Range of Recommended Allowances	1,600–2,900	55–70	0.8	4,000–5,000	70–75	
No. Homes Below Lower Limit of Recommended Allowances	—	—	1	1	6	

* Homes are designated by alphabetical letters, i.e., "A," "B," "C," etc., and are listed for each nutrient.

Therefore, if more vitamin C were provided during the study days, the intake would be relatively higher than the availability. The intake data would show a deficiency with a converse situation. The remaining influences pertained to the consumption of extra foods and to the catering of individual patients by food service personnel.

The results do indicate that the administrators were not giving sufficient consideration to providing a good source of ascorbic acid for each patient each day.

Individual Patient Intakes

The data revealed no significant similarities or trends regarding the nutrient intakes and the relationships of intakes to availabilities or to recommended allowances among patients within the same home. The lack of consistency within an individual home was due to a variety of factors: consumption of extra foods, lack of homogeneity among study patients, and individual catering by administrators and food service personnel. In addition, it should be emphasized that subjective elements entered into the selection of the 65 subjects. Thus, their intakes may not be representative of all patients in the 13 homes or of all patients in Milwaukee's nursing homes.

The Health Department felt that it would be valuable to learn if the patients' food intakes were related to their

age and sex. The average nutrient intakes were compared to the appropriate recommended allowances, and the subjects were grouped according to age and sex. The findings are summarized in Table 3.

It is of interest that five of the 11 men 75 years and over were not receiving the recommended quantities of protein. This might be attributed to a small consumption of meat due to difficulties in chewing. Three of the five had none of their own teeth and no dentures. Two of the three without teeth indicated chewing problems in the interviews.

With the exception of the protein intakes of the men 75 years and over, there were no significant relationships between the patients' age and sex and their food intakes. Unless each patient

Table 2—Availabilities and Average Daily Intakes of Vitamin C

Home	Availability	Patient Intakes	Comments
K	Adequate	3—Adequate	———
		2—Deficient	Patients left some foods at all meals.
E	Adequate	All—Deficient	Distribution of available foods questionable; 2-oz juice servings; salads and vegetables often not eaten.
J	Adequate	3—Adequate	———
		2—Deficient	One ate in Annex where breakfast fruit occasionally differed from menu; patient had pineapple juice instead of orange one morning. Other patient left some fruit and vegetables at each meal.
D	Adequate	3—Adequate	———
		2—Deficient	Catering to individual likes, etc., caused the differences among patients' intakes.
C	Adequate	1—Adequate	Patient received 8-oz orange juice in place of applesauce one day.
		4—Deficient	Menus revealed extra vitamin C on "nonpatient study" days.
A	Adequate	All—Deficient	Discrepancy between availabilities and intakes of all nutrients; validity of inventory data questionable.
B	Adequate	All—Deficient	Menus revealed extra vitamin C on "nonpatient study" days.
L	Deficient	4—Deficient	———
		1—Adequate	Patient known to consume "extra foods."
H	Deficient	All—Adequate	Distribution of portions of vitamin C foods questionable; one 46-oz can juice used for 36 patients. One patient ate whole grapefruit as a "snack."
M	Deficient	3—Deficient	———
		2—Adequate	Differences were +1 and +3; 1 known to consume "extra foods."
I	Deficient	All—Adequate	Most patients received varying amounts of orange juice daily; five in study had 4 oz each day.
F	Deficient	2—Deficient	———
		3—Adequate	Two patients known to consume "extra foods."
G	Deficient	All—Deficient	———

Table 3—Patients Meeting Recommended Allowances of Nutrients

Age Range and Sex		No. of Patients	No. Meeting Recommended Allowances: Calories	Protein	Calcium	Vitamin A	Vitamin C
40–54 years	M	2	–	2	2	2	–
	F	4	1	4	2	4	1
55–74 years	M	10	3	8	6	8	3
	F	12	9	8	5	10	5
75 years and over	M	11	5	6	6	7	3
	F	26	22	21	12	23	14
Totals		65	40 or 62%	49 or 75%	33 or 51%	54 or 83%	26 or 40%

is considered as an individual entity, the caloric intake cannot be evaluated accurately. The Recommended Dietary Allowances of the National Research Council[4] and the modifications of LeBovit and Stiebeling[5] base energy needs upon levels of moderate activity. In nursing homes there are various degrees of ambulation among the patients. The limitations of time prevented any judgments on the basis of weight changes. With the bedridden individual caloric requirements are even more difficult to establish.

The calcium intakes seemed to be dependent upon the individual use of milk as a beverage as well as on the quantity of milk and cheese products utilized in cooking.

Vitamin A allowances usually were met if deep green or yellow vegetables were eaten during the study days. The actual vitamin A data may be misleading and needs careful interpretation. In some of the homes, several vitamin A-rich foods were served during the four days when the patients were not studied. Thus, over a weekly period the intakes might be satisfactory.

Food Habits of Patients

Through the individual interviews, observations at mealtimes, and the comments of food service and administrative personnel, the dietitian amassed information regarding food likes and dislikes, relative ease of chewing, and patients' interest in eating.

Likes and dislikes mentioned by the subjects appeared to be governed by the foods being served during the interviews. The items considered desirable by some were disliked by others, and the data did not reveal any specific trends in the older patients' eating patterns. Most of the subjects offered no explanations for food likes and dislikes. Responses such as "I don't know—I just do" were common. However, there were several references to childhood and the past, to physical conditions such as diarrhea, and to the texture, flavor, and caloric content of foods.

If the texture of foods or methods of preparation caused difficulties in mastication, these factors might affect the food intakes. Forty-seven patients said they had no problem with chewing, while 18 responded "yes" or "sometimes" with five specific references to "tough meat." In the group reporting chewing difficulties, six used dentures, six had very few of their own teeth or were missing upper or lower dentures, and six were without any teeth. However, it is of interest that six of the patients with no chewing problems also had no teeth.

Eating habits of the patients also might be affected by the time spans between meals. An early supper served between 4:00 and 4:30 p.m. might be received with apathy after a heavy lunch and might also promote a desire for additional foods before retiring. Twenty-two of the subjects were known to eat extra items purchased by self, relatives, or friends. The selection was varied and frequently the snacks were consumed prior to bedtime. In addition, four patients said they saved items from supper trays to eat later.

Another finding which might be related to an early supper hour was the excessive hunger at breakfast time. Six of the subjects commented on this point during the interviews, and the dietitian also found that most of the nursing home residents tended to have better appetites and to eat all foods served at the morning meal. It is of further interest that several administrators felt that their patients "would be satisfied with dessert, bread, and coffee at supper." If the supper hour were delayed to provide a minimum of five hours after the noon meal, the patients might be hungrier at supper time and thus be able to consume the nutrients necessary for a balanced food intake.

The 1958 National Conference on Nursing Homes and Homes for the Aged recommended that "at least three meals per day should be provided with not more than a 14-hour span between a substantial evening meal and breakfast."[6] The suggested time span would result in approximate five-hour periods between breakfast and dinner and between dinner and supper. The serving schedules in the study homes were rated according to the criterion of a 14-hour span between supper and breakfast. Only one of the 13 homes met the recommended standard, while the remaining 12 varied from 14½ to 15½ hours between supper and the following morning meal.

Food Service Practices of Nursing Home Personnel

To obtain a more complete picture, the dietitian reported subjective observations of good and poor food service practices in the homes. Menu planning and meal service needed improvement in all of the institutions. Additional problems were in the areas of food handling practices, usage of therapeutic diets, food purchasing and preparation, and employee policies.

Values of Study

It is apparent that this survey of food service practices contains areas of questionable scientific validity. For example, if the cook was unable to write, it is plausible that some of the purchased items were not recorded. If patients were reluctant to report all items eaten between meals, an accurate appraisal of total food intake would not be obtained. However, the problems observed by the dietitian and the statistical data do reveal that food service practices warrant improvement in the 13 homes. Although the sample was small, these findings may be considered similar to food service problems in other nursing homes which are operating with similar personnel and similar budgets. The results of the survey are being utilized by the Health Department staff in the planning of current and future educational programs for nursing home personnel.

A method for evaluating food service practices in nursing homes and homes for the aged has been developed for staff usage. The nursing consultants evaluate menus, tray service, serving schedules, and the administration of prescribed diets during routine visits to the homes.

It is apparent that knowledge and skills in nutrition should be an essential segment of the background of nursing home administrators. In the near future the Health Department will require ad-

ministrators to complete a food service course prior to licensure. A similar program also will be developed for those individuals currently operating nursing homes. The course will include basic nutrition with emphasis on the practical aspects of menu planning, food purchasing, cooking methods, and meal service. The future administrators can observe demonstrations of methods of including milk and calcium equivalent foods in cooking and baking and of using food sources of vitamin C in salads and desserts. In addition, it seems essential to present information on the technics of preparing foods which require little chewing and still provide the necessary nutrients.

Although food purchasing will be an integral part of the food service course, it may be necessary to present this information through other channels. The Milwaukee Health Department is aware that the operation of a proprietary nursing home is a business enterprise and that one of the objectives of the administrator is to realize a profit. It would seem essential to demonstrate that optimal food service operations can be maintained without any significant rise in food cost. If it is not feasible to include all of this practical information in the nutrition course for administrators, it might be necessary for the nutritionist to render direct service to a home on a demonstration basis.

Summary

Thirteen proprietary nursing homes in Milwaukee, Wis., were surveyed to determine whether sufficient foods were purchased to meet the recommended allowances of nutrients. In addition, the food intakes of 65 selected patients were evaluated to learn whether the recommended amounts of calories, protein, calcium, vitamin A, and vitamin C were consumed.

The subjects were interviewed by a qualified dietitian to learn whether eating habits were influenced by any significant factors. Food service practices in each of the homes were subjectively appraised by the dietitian.

The statistical data and the observations revealed a need for improvement in the food service operations of all of the study homes. The survey has been an instrumental factor in the development of nutrition education programs for nursing home personnel by the Milwaukee Health Department.

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The problem of nursing homes has been recognized as a community health matter. This account of the developments in a southern state indicates one approach to the problem of supervision and standards.

APPROACHES AND STANDARDS FOR HYGIENE IN NURSING HOMES

Joel C. Beall

NOWADAYS, most of us, barring fatal accidents, some acute disease which ends in mortality, or other factors resulting in death and which enter statistically into the picture, can expect to live to the age of 68 to 70 years. The fact that this statement can be made reflects much credit on many professions, not least on public health. Because public health has played a part in making people live longer, perhaps it also should assume a certain responsibility in helping older people solve some of their problems. Among the needs of the aged are custodial care in the sense of "looking after" people, a place to live, good food, friends, and help in combating chronic infirmity and disease. While most of these needs can be satisfied at convalescent and other institutions of various types, one would question the economics of the situation and the degree of satisfaction with which such needs are met in most instances. These factors, combined with the knowledge that the number of beds in such institutions is woefully insufficient to meet the needs of those for whom they were intended, have given rise relatively recently to an increase in the numbers of a comparatively new institution—the nursing home.

Why should public health be concerned with standards for nursing homes? Aside from the moral responsibility, there seems to have developed an obligation among public health people due to the fact that older people are rapidly increasing in numbers and that a large segment of the population is involved; thus, the problem has become a public one, at least from a regulatory standpoint. Other public agencies, among which are hospital authorities and welfare departments, share this sense of obligation. Some state and local governments have enacted laws regulating the operation of nursing homes from the standpoint of medical and nursing services, diet, sanitation, and the like, and with respect to the welfare status of certain patients. Thus, it can be said that the problems and needs of the aged are of concern to a number of public agencies, professions, and disciplines and are not merely of interest or concern to one alone.

As an example of this mutual concern and cooperation, let us consider one approach which has been made in an effort to obtain at least minimum standards for hygiene in nursing homes. In 1948, the Georgia State Board of Health, upon the recommendation of representatives of the State Department of Public Health, the State Department of Public Welfare, and the state dental, nursing, medical, and hospital associations

adopted rules and regulations governing the operation of nursing homes and homes for the aged. Broadly speaking, the requirements set forth covered nursing home personnel, construction and fire safety, location, transportation and communication facilities, housekeeping and sanitation, medical care, nursing and personal service, food service, and records. Under authority of enabling legislation the city of Macon and Bibb County, Ga., in August of 1957 established and determined to administer through the local health department certain of the regulations which were adopted at the state level. These local regulations were confined primarily to environmental features of nursing homes and included general construction, control of pests, ventilation and lighting, toilet facilities, water supply, handwashing facilities, disposal of solid and liquid wastes, bathing facilities, patient floor space, heating and food service. They also included the requirement that an operating permit be issued by the local health department. At this point we became armed with authority, and it might have appeared that within a few months those nursing homes which did not comply with the minimum established standards would close their doors. Such a Utopia, of course, did not materialize.

Through the medium of a review of the history of this local nursing home situation for the past decade, let us visualize the events which occurred prior to the time of passage of the 1957 local requirements. Soon after enactment of the State Board of Health regulations in 1948, the State Department of Health began an intensive program which has continued to the present, involving making contact with nursing home administrators for the purpose of advising them on necessary improvements in facilities and services at their establishments. Because the state as a matter of policy has not pushed for the enforcement of its regulations, the contact which state personnel have made with nursing home administrators has largely been advisory and educational by nature. As a result of this policy, administrators have been afforded an unusual opportunity to become acquainted with the public health reasons for the regulations. While this service and its results have been invaluable to the local health department, desirable results toward meeting minimum sanitary standards have not been obtained because enforcement procedures were absent. Most of the nursing homes which one encountered ten years ago were located in buildings which had formerly been residential structures and which were in a bad state of repair. The need for capital improvements to such properties was so evident that nothing short of enforcement procedures could be expected to bring about abrupt changes. The Macon-Bibb County Health Department's recognition of this situation led to the passage of the local laws, already referred to, in August of 1957. Before we observe the present state of affairs, however, let us review in some detail the educational work which has been done by local personnel and which leads us to the present situation. During the summer of 1953, the local health department began making its first formal, although unofficial, contacts with administrators of nursing homes. Using the State Board of Health regulations as a guide, each nursing home was visited a number of times for the purpose of becoming acquainted with the administrator and to obtain an inventory of the available environmental facilities at each establishment. The general physical condition might be described as dilapidated with items such as screening, lighting and ventilation, floor space, bathing and handwashing facilities, fire protection, heating and food service woefully lacking. Recognizing that eventually physical plant improvements would be made, local health personnel gave much

of their time to the business of teaching local architects and builders the fundamentals of good nursing home construction and design.

The ensuing 18 months were utilized in becoming acquainted and making friends with administrators and in general promoting the idea of working together toward a common aim. By chance there also occurred during this period publicity in the press which was unfavorable to both the local health department and the nursing homes. This served the happy purpose of bringing the two groups closer together and in November, 1954, the administrators of the six nursing homes which existed at that time in Macon and Bibb County met to organize a formal association. Plans in this connection proceeded rapidly with the establishment of an objective, planning of programs, election of officers and a decision to meet bimonthly. The name chosen for the new group was the Macon Council of Nursing Homes, and its scope of activity was stated to be "to meet together for the purpose of exchanging ideas and to study methods and procedures to better prepare us for the work." The objective of the group was "to render the best service possible to the county in caring for aged or helpless people and to make them feel that they are citizens in every respect." The group has met regularly for three years, and it is interesting to note that although funds were limited (dues were nominal) a plan for meetings was worked out whereby a minimum of expense would be involved. Each nursing home administrator assumed in rotating order the responsibility for providing a meeting place and for serving a meal to the entire group. The meetings were held in the several homes, with this plan serving the purpose of promoting good relations among the administrators as well as providing each of them with the opportunity to observe the conditions, equipment and practices in the other establishments.

Each meeting also included a specific and formal program suited to the needs of the group. There were lectures, films, and demonstrations covering such areas as legislation, physical and occupational therapy, housing of the aged, diet, environmental facilities and sanitation, maintenance schedules for housekeeping, specific chronic diseases, personnel problems, nursing services, and in addition there were special programs designed to bring to the group particular information on administrative problems such as record keeping, purchase of food and supplies, and the like.

As one might suspect and even anticipate, this group has been held together by the efforts principally of two "spark plug" members. One will find that this situation exists in almost every group, and it is not an unusual one. Although these two people put forth the greatest effort directed toward sustaining the interest of members in the group, the organization has certainly been a democratic one. Membership in the council has not only included administrators of nursing homes but has actively involved key employees as well. It should be emphasized that although the local health department has played a definite role in the development of this group, it has in no sense been primarily responsible for the success which the group has enjoyed. Services to the group provided by the local health department have included the loan of audiovisual material, stenographic and mimeographing work, obtaining speakers, and similar services. As an illustration of the growth and progress which the council has made, it should be stated that within the short space of three and one-half years, membership has increased from 6 to 17 homes with the membership covering several counties rather than the original one county.

With regard to standards for hygiene in nursing homes, it has already been

stated that the local regulations were in general confined to environmental features. While this discussion will adhere to this limitation, it should be pointed out that personal care and nursing and medical service, as well as other features, are desirable parts of any nursing home program and should be of interest and concern to public health departments. In brief, let us consider a few of the features of environmental health control with which we are concerned. The aged and infirm have particular problems, and these especially must be met and resolved if we are to expect a healthy environment in nursing homes. Of all such problems, probably the greatest involves protection against acute communicable disease and against accidents. With regard to the first of these, we can apply the usual standards of good construction, safe water, safe disposal of sewage and refuse, protection against insects and rodents, employee cleanliness and proper performance, food and milk supply, and food-handling facilities and technics. We should certainly be able to expect a nursing home administrator to provide an adequate supply of safe water, to furnish food which is satisfactorily nutritious and which has been prepared in surroundings and under conditions equivalent to those specified by the Public Health Service ordinance Other factors, such as ventilation, facilities for maintaining personal cleanliness, and the like, also play a large part in preventing the spread of acute disease, and it is assumed that all of us are familiar with the many factors which are basic, especially in a nursing home.

The possibility of accidents, of course, cannot be ignored. Older people are more inclined to become involved in accidents, and resulting disabilities will probably be more severe and longer lasting. Special importance, therefore, must be attached to the elimination of safety hazards, such as open-flame nonvented heating appliances, changes in floor level, poor lighting, absence of guard rails and hand rails, unnecessary accumulations of materials of various kinds, condition of floors, arrangement and condition of furniture, steep or lengthy steps, absence of exits for escape in case of fire and fire alarm systems, and as well any other condition within the home or yard which might give rise to the possibility of an accident. If we are to believe accident statistics, nursing home safety is also basic.

It may be observed then that the nursing home profession has itself created a service for the purpose of fulfilling a need which exists throughout the United States. The problem of establishing standards for hygiene is attracting the interest of the public health profession and is being shared, and rightly so, by other professions and by several governmental agencies. It cannot be overemphasized that throughout the country nursing homes can provide a service to communities which is not only useful but which is rapidly becoming indispensable under our modern-day living and under the changes which almost daily occur in the general public health picture. Aside from the part which nursing homes play in any community in the provision of physical facilities which cannot presently be furnished by other means, there is the inescapable fact that nursing homes fulfill a need with respect to the economy of any community. This is a self-evident fact when we know that patient rates in nursing homes range from $3.50, as compared to rates of $12 and upward per day in hospitals and similar institutions.

It has been observed by our local health department that during the past several years nursing homes have grown both in quantity and quality, and while ideal conditions in these respects have not yet been attained, we may expect real progress in the future. Administrators of nursing homes have begun to

recognize their responsibilities and recognition is being given to their efforts through the interest and help which many groups, notably public health, are offering.

The creation of the nursing home profession is an example of private enterprise assuming a responsibility and fulfilling a need which otherwise might be provided by government. If public health, which after all is a branch of government, is to assume its share of the total responsibility, we in the profession of public health must develop adequate but reasonable standards which must be followed in the operation and construction of nursing homes, and above all we must, in our approach to the problem, specifically and positively involve the nursing home profession itself. Although with this approach the road to success may be somewhat longer, we can confidently expect it to be a surer route. We must remember that good nursing homes will not be built in a day.

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Health in Relation to Culture

"Some consider that culture is operating to man's biological detriment—specifically that medicine, by suspending the operation of the natural selection that would eliminate the physically defective, is endangering man's biological inheritance, and that this must be corrected by a program of artificial selection, of eugenics. My feeling is that we simply don't know enough about the operation of biological or cultural laws for intelligent decision; that whatever the biological consequences, we are caught in the stream of culture, and that we must try to operate with the currents of that stream. The problems are both urgent and fascinating. That their understanding will require the fusion of biological, medical and cultural points of view, certainly does nothing to detract from their fascination."

(From: Medicine and Anthropology, New York Academy of Medicine, Lectures to the Laity. Vol. 21, edited by I. Galdston, International Universities Press, Inc., 1959.)

The author of this paper contends that health departments need to focus more attention on the adequacy of municipal water supplies and systems. Leadership should be provided by state health departments.

KEEPING UP WITH SUBURBAN WATER SUPPLY REQUIREMENTS

Dwight F. Metzler, C.E., F.A.P.H.A.

ONE OF THE primary justifications for the formation of many state health departments and the original reason for having sanitary engineers in them came from the need to eliminate waterborne epidemics which continued through the 19th into the early 20th century. Since then engineers and related disciplines have continued to refine and extend water purification practice. Much progress has been made since Mark Twain visited St. Louis in the 1890's and remarked that the reason hotels of the city furnished half a dozen cakes of soap with each bath was because once the soap slipped out of the hand, there was no use looking for it.

Now, a report of the Association offers a new view of the reasons for environmental control which supports those who believe that an adequate water supply—one which assures water at the tap of each customer whenever and for whatever he wants it—is of major public health concern. On the basis of conclusions in this report a water supply does not meet the health requirements of the community unless it is always available in good quantity, even though it may always be free from bacteria and chemically acceptable.

In a 1958 report of the Program Area Committee on Environmental Health, four levels of public health concern are described. They are the prevention of death, the prevention of disease, the promotion of efficiency and well-being, and providing for enjoyment of life. To illustrate this concept, a health official might, in time of great disaster, approve public drinking of any water in order to avoid death from thirst even though he might not know that the water is pure. The level of public health concern in this example would be the lowest—the prevention of death.

Most state health department public water supply programs are at the next level; they are aimed at the prevention of disease. This means striving for better levels of bacterial quality in the raw and finished water, improvement of chlorination practice and carefully refined improvements to water coagulation, sedimentation, filtration and taste and odor control. Attention has been given to adequacy of supply and distribution systems because of the hazards of negative pressures and back-siphonage of contaminated water into the system.

These efforts by health departments have not been as extensive as they might be if public health administrators were convinced that "maintenance of efficient performance" and "providing

for enjoyment of life" are responsibilities of the public health agencies. Health agencies still need to be concerned with the control of water-borne disease and with research to assure that presently unrecognized disorders caused by viruses, toxic compounds, or other material are not transmitted through the public water systems. However, they should be equally concerned that sufficient water is available for automatic washers, air conditioning, and even backyard swimming pools; that decreased pressures require the consumer to spend 15 minutes filling the bathtub; or that inadequate water supplied the dishwasher is of public health significance and concern.

Water Supply Inadequacies

The waterworks industry has been questioning the adequacy of its physical plant and has initiated a national program with the U. S. Junior Chamber of Commerce to spotlight deficiencies in the facilities of local systems. While predicting future water needs is difficult, certainly the widespread occurrence of inadequate supplies and systems cannot be justified for such a reason.* A survey by the American Water Works Association shows that in American cities over 25,000, 20 per cent are deficient in the capacity of water mains. Insufficient pumping capacity, a simple deficiency to correct occurs in one city in three; of those cities with treatment plants, 40 per cent have inadequate capacity. Forty-three per cent of the cities have too little elevated storage and 29 per cent lack sufficient ground storage. What are the public health implications of these statistics? How can these conditions have occurred if state health department officials are meeting their responsibilities? In addition, many systems produce water lacking in such desirable qualities as softness, palatability, clarity and freedom from color. Some waters are unstable, causing the mains to corrode or to be reduced in capacity by deposition. These factors also, have public health significance.

These inadequacies grow more important, particularly in suburban areas because of the great number of new houses and the national trend to move out to fresh air, more room, and, hopefully, lower taxes. Our population is growing at the rate of 1.7 per cent per year—and per capita water consumption is increasing nationally at 2 per cent per year. In the suburbs, the yearly increase in population and per capita consumption is much greater. Further, national averages fail to give an accurate picture of the extent of deficiencies and the rate of growth experienced in some communities.

Kansas Experience

Prior to 1950, the State Board of Health in Kansas like other state health agencies had placed primary emphasis upon maintaining the bacterial and chemical quality of its public water supplies. Recommendations relating to adequacy of supply and of transmission facilities had been made frequently, but only on an educational basis; however, the matter of adequacy became particularly critical during the drought of 1952-1957. In 1954, 169 of the state's 426 cities rationed water—87 on a voluntary basis, 78 by ordinance, and four by adjusting water rates. This led to an investigation of the causes of the

* The 1885 report of the Philadelphia Bureau of Water states: "The creation and maintenance of a system of water supply to a great modern community is practically a never-ending problem. The needs of each generation so largely transcend not alone those of the preceding one, but even the estimates which could then have been formed of the future requirements, as almost invariably to exceed reasonable anticipations and far outrun the capacity of existing construction, even with considerable additions from time to time."

Table 1—Kansas Water Supply Systems —Reasons for Rationing, 1952–1956

Type of Inadequacy	No. of Cities	Total Population
Reservoirs	17	51,800
Stream	15	54,600
Wells	116	367,400
Pumping capacity only	14	59,900
Treated water storage	3	1,900
Distribution system	1	1,700
Combination of pumping, storage treatment, and/or distribution	8	61,200
		598,500

shortages. These have been reported elsewhere.* A summary of the findings is shown in Table 1.

So far as is known, not a single case of water-borne disease resulted from these deficiencies. In addition, the percentage of Kansas cities meeting the Public Health Service standards for bacterial quality of drinking water was greater than ever before. So far as preventing disease and death, the State Board of Health program of public water sanitation was completely satisfactory. But from the public point of view, it was not. Water for lawns, car-washing and recreational use was forbidden, and in some of the cities water for dishwashing, bathing, cleaning, and other vital uses was sharply limited. The curtailment of water delivery to businesses and industries caused severe economic dislocations.

Much newspaper space was given to the water shortages and the inconvenience they caused. Despite a 50-year state program of public water supply sanitation which included waterworks schools, refresher courses for sanitary engineers, regular checking of facilities and meetings with public officials, the facts were that some cities were out of water. While earlier efforts to get adequate, safe supplies attracted little public attention, this was not true of the board's efforts to aid cities hit by shortages. When public water supplies were knocked out by flood or when the source of supply was exhausted by drought, the front page headlines were two inches high. The state's efforts to help assure safe water through assistance in hauling, makeshift purification systems, cloud-seeding, or the reuse of waste water received front page, radio, and TV coverage.

When a study was made of the specific reasons for the shortage, lack of foresight, not lack of water was the most frequent cause. In nearly two-thirds of the cities, lack of vision and inadequate planning were the major causes of shortages.

A study of actual water consumption data for eight Kansas cities was made in an attempt to determine the rate of change in per capita consumption over a 35-year period. The data are shown in Table 2. It will be noted that the mean increase in the average per capita consumption is 71 per cent for the 35 years.

Because of the drought, district engineers for the board placed special emphasis on their evaluations of municipal supplies, and cities were encouraged to employ engineers and legal advisers to assist them in meeting present needs and planning for future expansions. Kansas' experience is probably little different from that of other states; the progress has not been rapid. From three to five years is required to proceed from the finding that additional facilities are needed, through development of a plan, official acceptance, public acceptance and construction.

Of the 169 cities which rationed water five years ago, 93 have since made major additions to their facilities. Twelve of the 15 lake supplies made

* Transactions, Fifth Annual Conference on Sanitary Engineering, Univ. of Kansas, 1955.

some improvements and all but one are adequate for a reasonable growth in future demand. Of the 15 supplies from streams which failed, nine have made improvements to assure an adequate supply. Two others have made improvements which are now adequate but they would not be for a prolonged drought. The improvements obtained have been accomplished in full cooperation with city officials and consulting engineers, without any direct orders.

Other state agencies have helped with the program. For example, a start has been made in securing and analyzing better hydrological data through publications of the State Water Resources Board. Detailed information on the availability and quality of ground water is being obtained under a cooperative program in which the state and federal geological surveys determine the location and amount of ground water and the Board of Health determines the chemical quality. Additional information on hydrology has been developed at annual training courses for sanitary engineers, and with the assistance of consulting engineers some changes have been made in the Board of Health design policies. These place more emphasis on adequacy considerations.

District engineers of the board have paid special attention in their regular appraisal of sanitary features of city waterworks to the adequacy of supply, treatment, pumping, and distribution facilities. These reports have been followed by meetings with the city governing bodies to explain the inadequacies and to urge that they be corrected. The state's League of Municipalities has been helpful by printing annual tabulations of municipal waterworks data, including capacities and daily demand. While the percentages of Kansas cities with inadequacies are less than the national percentages previously quoted, they are still too high considering the years since the first warning of inadequacy. This is the result of insufficient professional staff time and effort on the part of the board. Because of this experience, Kansas is convinced that a plentiful water supply is nearly as important as a safe supply and that both are possible.

Health Department Responsibility

There can be no doubt about the contributions of an adequate water supply toward health. Health departments have the duty of carrying out their legal water supply responsibilities to give particular attention to adequacy.

Table 2—Increase in Water Consumption—1920 to 1955

City	1955 Population	Per capita Consumption 1920 (gpd) Avg.	Max.	Per capita Consumption 1955 (gpd) Avg.	Max.	Per cent Increase Avg.	Max.
Emporia	14,609	104	186	180	271	73	51
Hays	10,033	100	212	169	330	69	56
Kansas City	128,666	145	172	200	283	38	64
Lawrence	20,928	90	131	126	192	40	46
Leavenworth	21,292	122	182	93	176	−22	−3
McPherson	8,860	123	286	269	555	119	93
Topeka	82,921	69	86	147	269	114	212
Wichita	224,700	72	144	137	282	88	96

This means careful study of hydrologic computations, as well as hydraulic and treatment plant capacities in the review and approval of plans. When water supply permits are issued the health department should have assured itself that the supply and facilities are adequate for a reasonable period in the future.

Most state health departments make at least an annual appraisal in the field of each public water system. If cities with inadequacies can be guided into the development of a long-range, orderly program of improvement, the community will benefit and the public health will be advanced.

In summary, health departments need to focus more attention upon the necessity for adequate municipal water supplies and systems—both in evaluating need and in promoting enlarged facilities. This responsibility increases as health officials turn increasing attention to the maintenance of efficient performance and providing for the enjoyment of life. As applied to water supplies this means soft, palatable, sparkling clear water at the tap whenever and for whatever the consumer wants it. An unusual amount of public attention was focused upon public water supply adequacy by the recent drought in Kansas. Bringing those cities with shortages up to adequate standards required good public understanding and the coordinated efforts of local and state officials with their engineering and legal advisers. State health departments should certainly provide the leadership for keeping up with public water supply requirements.

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This paper was presented before a Joint Session of the Conference of Municipal Public Health Engineers, the Conference of State Sanitary Engineers, the National Association of Sanitarians, and the Engineering and Sanitation Section of the American Public Health Association at the Eighty-Seventh Annual Meeting in Atlantic City, N. J., October 19, 1959.

Considering the public health aspects of refuse disposal, the authors of this paper believe that control by state health departments is desirable. State control of incinerator design based on sound criteria can assure the most satisfactory results. The authors make recommendations of items for inclusion in state standards of design.

REGULATION OF REFUSE INCINERATOR DESIGN BY PUBLIC AGENCIES

Glen H. Abplanalp, C.E., LL.B., and Junius W. Stephenson, C.E.

DISPOSAL OF GARBAGE and rubbish in the form of mixed refuse is a community problem commanding more and more attention throughout the United States. The fact that suitable areas for dumping or landfill operations are becoming increasingly more difficult to find, especially in crowded metropolitan areas, is forcing municipal authorities to investigate alternate means of refuse disposal.

Probably the foremost of these alternate means is high temperature incineration. Because of the uncertain and often unsatisfactory results of incineration in the past, it is the purpose of this paper to discuss the general lack of incinerator design regulation by qualified public agencies and to present recommendations for such regulation.

Background

In the distant past, disposal of garbage and rubbish presented little problem. Household garbage was largely fed to livestock, and paper and other materials were salvaged. What little remained presented no problem in private dumping or open burning. As time passed, however, private household disposal became less feasible and an appreciable public nuisance developed, especially in more densely populated areas. As a result, the practice of incineration of garbage evolved in Europe, notably in England in the latter part of the nineteenth century. When the practice spread to this country, designs were patterned after English plants.

Material to be disposed of in the earliest plants consisted almost exclusively of heavy, compact, wet garbage, and the plants were designed accordingly. Auxiliary fuel was required to maintain combustion, with coal most frequently used. The early American plants were in fact garbage cooking or reduction units rather than incinerators. Operation was at low temperatures, usually with discharge of extremely foul odors.

With the addition of lighter, more readily combustible rubbish to the garbage and with the application of the principles of combustion to incinerator design, higher temperatures were attained with less auxiliary fuel, and in-

cinerator operation became more successful and less of a public nuisance. As recently as 20 years ago, however, the average municipal refuse contained 50 per cent or more garbage. Drying hearths were provided to permit partial drying of the refuse before it was manually pulled down onto the burning grates. Forced draft was a necessity, with waste heat in the discharged gases utilized to preheat combustion air. Various refinements, especially in the field of heat conserving devices, were made over the years; however, the above description generally fits all incinerator plants built in this country through World War II.

Incinerators Unpopular

While some of these plants served their purpose adequately and in a nuisance-free manner, many did not. As a result of the discharge of smoke, odors, fly ash, and unburned materials, plants were frequently denounced by the public, and incineration fell into disfavor in many areas. Abandonment of new plants after only a few years of ineffective operation was common. For example, it is reported by the Oklahoma State Department of Health that several Oklahoma municipalities operated incinerator plants some 20 or 25 years ago; however, all have since been abandoned and there is not a single plant in operation in the state at this time.

The reasons for unsatisfactory operating results were many, although perhaps a few stand out. Outside of the manufacturers themselves there were few qualified incinerator experts, and, therefore, there was little if any objective control of planning and design. A community facing a refuse disposal problem was frequently guided only by the manufacturers with the most active sales forces. They, in turn, were forced by the pressure of competition to keep their costs to a minimum. Reports which might have shown dumping preferable to incineration were not written. Studies to determine actual composition and quantities of refuse and to permit reasonable forecast of future needs frequently either were not made or were only superficial. Incinerator plant capacities were often based on population data alone. Designs were not always those best suited to the particular refuse to be burned, but were often manufacturers' standards taken "off the shelf." As a further concession to competition, these standard designs were usually based on minimum chamber volumes, grate areas, flue and chimney sizes, and the like. Even when engineers were retained, the usual practice was to prepare only general plans and performance specifications, leaving details of furnace sizing and construction to the judgment of the successful bidder. Under these circumstances, it is not surprising that new incinerator plants frequently became overloaded after short periods of time or were initially incapable of properly burning the refuse charged to them. In addition, plants were usually relegated to inconspicuous sites on the outskirts of the communities served and frequently staffed with inexperienced personnel without adequate supervision. The results, with a variable refuse which was hard to burn under the best of conditions, were often disastrous. Such unsatisfactory operation from whatever cause, usually in combination with relatively high operating costs, led many communities to abandon incineration and return to other methods of refuse disposal. Even today, the word incinerator often brings to mind the picture of an ugly building and tall stack, belching smoke, ashes, and sometimes flames, and surrounded by obnoxious odors.

Refuse Composition Changing

Since World War II, there have been and continue to be notable changes in

composition of refuse and rapid strides in improved design of, and equipment for, incinerator plants. The change in refuse composition is an indication and result of our changing mode of living and of the effort on all sides to ease the burden of housekeeping. For example, the modern American housewife now discards paper and plastic wrappers from frozen ready-to-cook foods and oven-ready meats, instead of the vegetable stalks and tops, poultry entrails, meat trimmings, and other similar materials of the past. These former waste products are now disposed of by the packers, who frequently sell them for conversion to fertilizer or other by-products. Little, if any, of this material finally enters the municipal refuse. As a result, today's mixed refuse is lighter, drier, bulkier, and higher in combustibles than ever before. The 50-50 composition of yesterday's refuse has today become more nearly 85 per cent-90 per cent or more rubbish and 10 per cent-15 per cent or less garbage.

Advances in Incinerator Design

The most obvious change in municipal incinerator design is the trend away from fixed grates and to mechanical grates, which in one way or another provide agitation of the refuse bed. While mechanical grates are not automatic, they have been conclusively demonstrated to reduce manual stoking appreciably. When installed in old manually stoked furnaces, the usual effect has been an increase in plant capacity. The change in refuse composition has resulted in elimination of the need for drying hearths and preheated air. In fact, the problem now is usually one of holding temperatures down rather than up. There is also a distinct trend toward greater volumes and areas in chambers and flues, especially in the ignition chamber, to accommodate the greater refuse bulk and larger volumes of gases. The growing trend to air pollution control requires provisions for positive removal of fly ash in most plants.

Better Operation from Conservative Design

Despite the changes in design and improvements in incinerator equipment, there is still a wide variation in basis of design. With the trend to incineration, many engineers are turning to incinerator design for the first time. Lacking the necessary experience, many turn to manufacturers for recommendations on sizing of the various units and other design features. Still faced with the pressure of competition, manufacturers of similar equipment are forced to rate their units as highly as possible, although it is pleasing to find their ratings becoming somewhat more conservative. In official performance tests, units can usually be expected to burn refuse at the manufacturer's rated capacity. In normal operation, without the artificial test conditions and pressures, it is common to find that actual capacity is sometimes appreciably lower. It is the authors' opinion that incinerators should be designed on the basis of what can be expected from operating personnel and equipment in average day-to-day operation. A design based on artificial standards which can be met only under test conditions can easily lead to early overloading of a plant or unsatisfactory operation.

It is encouraging to find that the tendency among many engineers experienced in incinerator design is now to set volumes and areas on the basis of their own judgment rather than to rely on manufacturers' standards. This places no hardship on manufacturers, as all bidders are on the same basis; it does, however, tend to a more realistic rating of the units. An example of this is found in a small plant designed by the authors' firm. After examining the pre-

Table 1—Range of Variation in Incinerator Design Factors

Type of Furnace	Grate Loading lb/sq ft/hr	Furnace Volume cu ft/T/24 hr	Combustion Chamber Volume cu ft/T/24 hr
Rocking Grate	58–83	10–24	7–32
Circular	25–120	7–12	9–26
Rectangular Manually Stoked	15–111	5–23	11–21

liminary layout, representatives of two manufacturers advised that the furnace was oversized and that it should be rated at an appreciably higher capacity than that assigned. In the official performance test the manufacturers' rating was attained; in actual operation, however, normal capacity more nearly approaches our rating. It would seem that this community is much better served by a plant realistically designed for normal operation with the ability to exceed nominal capacity for short periods than it would have been by a plant with an artificially high rating which could be attained only under exceptionally favorable conditions.

Wide Variation in Design Criteria

Despite the more realistic design approach by many engineers, there is still a wide variation in design standards. Another example is found in two similar plants with which the authors are familiar. These plants are located in the same metropolitan area and burn refuse which is essentially similar in character. Each has a furnace volume of about 11 cubic feet per ton of rated capacity. Total grate areas are equal; however, grate burning rate at design capacity is approximately 70 pounds per square foot per hour in one and 82.5 lb/sq ft/hr in the other. It is reported that capacity operation is readily attained and frequently exceeded in the units with the lower rating, but that it is attained only with difficulty in those with the higher rating. The author's observations further showed an appreciably better quality of residue discharged from the plant with the lower rating.

A recent report[1] on municipal incinerator design practice includes the following statement: "In fact, the (design) data is consistent, generally, only in its inconsistency." From this report and from other published data, the range of variation in some basic design factors for plants burning municipal mixed refuse is found to be as is shown in Table 1.

A certain amount of variation would be expected from the varying composition of municipal refuse in different localities, although it would be difficult to explain the indicated wide variation on this basis. It can generally be expected, however, that where grate loading rates are high and chamber volumes are low, more difficulty will be experienced in attaining satisfactory incineration.

Survey of Refuse Disposal Regulation

This variation in design factors, which has come increasingly to the authors' attention in recent years, raised the question of the degree of regulation of refuse disposal and incinerator de-

sign by public agencies in general and particularly by state agencies. A questionnaire on the subject was prepared and mailed to health departments of 50 states and Puerto Rico. Questions asked were:

1. Does your department, or any department of the state, control or regulate the disposal of mixed refuse by dumping? Disposal of garbage by dumping? (If either answer is yes, would you please forward a copy of your regulations.)

2. Does your state control or regulate the disposal of mixed municipal refuse by incineration? (If the answer is yes, would you please forward your regulations.)

3. Must municipal refuse incinerator design, plans, and specifications be approved by a state agency before construction? (If the answer is yes, would you please forward a copy of your present minimum design criteria.)

When refuse disposal is considered in its rightful place as a matter of public health concern, the lack of state control revealed by the replies received is appalling. While most states have regulations concerning public health nuisances which can be construed as applying to refuse disposal, only 15 of the 47 replying indicated that they have general regulations applying specifically to refuse disposal. Most of the others either by statute or by custom delegate control and regulation to local authorities. Only nine replies indicated that control of dumping is under state jurisdiction and only New Jersey has detailed regulations covering dump operation. Ten states control incinerator operation, but only three have established specific regulations; all three are based on meeting air pollution standards. State approval of incinerator plant design is required in ten instances, but only Connecticut has established minimum design criteria. New Jersey requiries design to meet air pollution control standards.

Some state agencies have jurisdiction over specialized areas and methods of garbage and refuse disposal, but not over municipal refuse in general. Most state health departments encourage establishment of good practices and hold themselves in readiness to advise local authorities on the various methods and their adaptation to local conditions. Many have literature available covering operating procedures or suggested ordinances for local use. In the majority of cases, however, state agencies have authority only to recommend or advise, but no power of enforcement. This is in direct contrast to the close regulations of sewage and water treatment, wherein all phases of the program from preliminary planning through design, construction, and plant operation are subject to close state scrutiny and approval.

Good Design Key to Good Performance

From the wide range of design bases and the general lack of regulation, it is not surprising to find a wide range in effectiveness of incinerator plants. Basically, satisfactory operation can be attained in most modern plants, although it is not uncommon to find it only at rates somewhat under nominal capacity. Other plants may never serve adequately.

In most cases of unsatisfactory operation, the fault can be traced to the design and that, in turn, may result from an inadequate study of composition and quantity of refuse to be burned or from design by individuals not properly qualified. Failure by the designer to recognize special characteristics of the particular refuse can easily result in undersized units or other faults in design. Manifestly, design of a complex modern incinerator plant should only be by a qualified, experienced engineer. The following excerpt is taken from the report[1] previously referred to:

Responsibility for Engineering Plant Construction

"Eighty-eight cities provided information on where the responsibility for engineering the plants was centered. Consulting engineers had

primary responsibility in 54 (or 62 per cent) of the cities. The municipal engineering staffs of 14 (or 16 per cent) of the cities bore the responsibility for the design; the manufacturer in 17 (or 19 per cent) of the cities, and the manufacturer and the city engineering staffs took this responsibility jointly in three (or 3 per cent) of the cities. Of significance is the fact that in 34 (or 39 per cent) of the cases reported a consulting engineer was not involved in the design of the plant.

"Seventy-nine of the 88 cities responded to the query 'are you satisfied with the plant performance?' Sixty-nine reported, yes, ten, no. Of the ten plants reported giving unsatisfactory performance, seven were reported to have been designed and constructed without the services of a consulting engineer."

Our survey, which is incomplete on this subject, shows that only three states —Connecticut, Florida, and New Jersey —specifically require incinerator design by a qualified engineer. It is apparent, however, that a majority of communities do rely on consultants for incinerator planning, but that there is still a surprisingly wide range in basic design factors and operating results attained.

Aside from Connecticut's published criteria, the only other bases reported for state check of incinerator design are "on their own merits," "on the basis of current engineering practice," and so on. The fact that no recently constructed plants in Connecticut are known to the authors to be operating unsatisfactorily would appear to demonstrate the value of close state check of design based on published minimum criteria. Where there are no established criteria, designs are subject to the preferences and judgment of the designer and reviewing state official. Lack of experienced judgment or a thorough understanding of basic design principles on the part of either or both can, therefore, result in approval, construction, and possible unsatisfactory operation of an improperly designed plant.

Air pollution control standards comprise the basis for regulation in the three states reporting state jurisdiction over incinerator operation. This is a logical basis for control which should be applied to all incinerators; however, the regulations might well be extended to cover refuse storage and handling, plant safety, general plant sanitary practices, and residue disposal. In the absence of regulations to implement state control, experience has shown effective control to be difficult if not impossible.

State Officials Favor Regulation

Comments from state officials accompanying replies to our questionnaire indicated a general awareness of the need for greater regulation of refuse disposal. The following summarizes their replies and comments:

1. Refuse disposal is most satisfactory and nuisance-free when controlled by state agencies backed by detailed regulations and power of enforcement.
2. Absence of state regulation may result in inadequate design and unsatisfactory operating results from incinerator plants, as well as other methods of refuse disposal.
3. Consensus of state officials favors closer state control of all phases of refuse disposal, with detailed regulations and power of enforcement.

Conclusions

Most satisfactory and nuisance-free incinerator operation can be assured by close state control of design, based on sound established criteria. By contrast, state approval of design may be of little value when not based on such criteria. Appended to this paper is a brief summary of items recommended by the authors for inclusion in state design standards.

Considering the public health aspects of refuse disposal, the authors believe that it must come under the jurisdiction of public agencies. Most logical and most effective would undoubtedly be control by state health departments in a manner comparable to present control of water and sewage treatment.

Refuse Incinerator Design Suggested Outline for State Standards: General Requirements

Design

By qualified engineer registered in the state. Preliminary conference with state officials advisable.

Design Data

The following should accompany plans and specifications submitted for approval, with supporting data where possible:

1. Present and estimated future population to be served
2. Present and estimated future refuse tonnage to be burned:
   (a) Average annual day
   (b) Daily, weekly, and monthly variation.
3. Rated capacity of plant in tons per 24 hours
4. Composition and unit weight of refuse to be burned
5. General description of area in which plant is to be located
6. Daily and weekly operating periods
7. Grate burning rate in pounds of refuse per square foot per hour
8. Volumes of ignition, combustion, expansion, and other chambers in cubic feet per ton capacity per day
9. Design velocities and operating temperatures in all chambers, flues, and stacks
10. Capacities and other design data on fans, blowers, dust collectors, and similar equipment
11. Complete description of any proposed new or experimental equipment or operating technics.

Tonnage figures should be based on weighings for a stated minimum period. Where weighings are not feasible in small communities, design should be based on a stated minimum daily per capita production.

Specifications

Performance requirements:

1. Minimum capacity in tons per 24 hours based on stated refuse composition and moisture content
2. Allowable temperature ranges
3. Quality of residue
4. Maximum allowable smoke and fly ash omission
5. Statement that plans and specifications cover minimum areas, volumes, etc., and that the contractor is responsible for any enlargement or added features necessary to meet specified performance requirements.

Buildings

Fireproof construction required.

Minimum features including toilet, wash, shower, locker, lunch, and storage rooms, office, emergency exits, heating and ventilating, lighting, etc.

Safety Equipment

Minimum requirements for safety belts, face shields, gloves, fire-fighting and first-aid equipment, salt tablet dispensers, etc.

Truck Scales

Required at all but smallest plants.

Minimum capacity and platform size.

Reference to governing code or state agency.

Air Pollution

Minimum requirements or reference to governing code or state agency.

Local codes should supersede state regulation if more stringent.

General

General requirements for water supply, sanitation, residue disposal, etc., and reference to governing code or state agency.

Telephone required in building.

Provision for consideration of new equipment and operating technics.

Design Details

Floor Storage

Not recommended.

Permitted only in smallest plants.

Minimum area per ton where permitted.

Storage Bin and Crane

Minimum requirements for bin capacity, fire and dust control, disinfection, ventilation, drainage, weather protection, etc.

Design to permit crane bucket to clean entire bin floor.

Protection of bin floor and walls against damage by bucket.

Air conditioned crane cabs recommended.

Charging Hoppers and Gates

Minimum sizes.

Ignition Chambers

Minimum volume per ton per day capacity.

Maximum burning rates in pounds per square foot per hour for various types of grate.

Combustion Chambers

Minimum volume per ton per day capacity.

Conditions under which consideration given to combining combustion and ignition chamber volumes in single larger chambers.

Fly Ash Removal

When required.

Acceptable methods—wet or dry expansion chambers, mechanical dust collectors, etc.

Flues

Gas velocities and areas.

Chimneys

Acceptable types.

Areas, gas velocities, design temperatures.

Ladders, lightning protection, and obstruction markings.

Reference to state agency or code governing obstruction markings.

Ash Handling

Quenching in furnace hoppers, conveyor trough, or by other similar means required.

Manual quenching with hoses after removal from furnaces not permitted.

Air Requirements

Minimum combustion air required.

Requirements for forced draft, overfire, and auxiliary air.

Auxiliary Firing

When required and how provided.

Construction

Minimum requirements for floors, walls, roofs, arches and openings, including type and thickness of refractory.

General

Access, inspection, and cleanout doors.

Animal doors or holes.

Temperature indicators and recorders.

Signal and communication system.

Shutoff dampers with two or more furnaces.

Disposal of flushing and quenching water to be an integral part of plant design.

REFERENCE

1. Municipal Incinerator Design—A Survey of Engineering Practices. Sanitary Engineering Division Research Rep. No. 18, ASCE Proceedings Paper 1,677 (June), 1958.

Mr. Abplanalp and Mr. Stephenson are associated with Havens and Emerson, Consulting Engineers, New York, N. Y.

This paper was presented before a Joint Session of the Conference of Municipal Public Health Engineers, the Conference of State Sanitary Engineers, the National Association of Sanitarians, and the Engineering and Sanitation Section of the American Public Health Association at the Eighty-Seventh Annual Meeting in Atlantic City, N. J., October 19, 1959.

Suburban communities in their mushrooming growth have not infrequently encountered difficulties in providing adequate sewerage facilities. The following case history of a New Jersey community shows one way of dealing with the problem, and may suggest possibilities to others.

GROWTH OF THE BERKELEY HEIGHTS SANITARY SEWER SYSTEM

Peter Homack, C.E.

THIS PAPER outlines briefly how one small community—without any sanitary sewerage facilities except individual household subsurface disposal systems—embarked upon a program of installing a comprehensive sanitary sewer system designed to eventually serve the entire land area of the township. Following the completion of the first-stage program, the sewer system will now be expanded and will serve almost the entire township and enable future homes which are constructed to be served by sanitary sewers.

Present Facilities in the Township of Berkeley Heights

In 1955, the township of Berkeley Heights initiated a study to determine the feasibility of providing a comprehensive sanitary sewerage system to serve as the backbone of a system which could eventually be extended to serve the entire township. Berkeley Heights is a relatively small suburban community, located in the northern portion of New Jersey. Like many small communities bordering a metropolitan area, the municipality has been faced with rapid population growth and extensive housing developments created by the spread of population to the outlying suburban areas.

This community, like so many growing suburban municipalities, has a relatively large land area, which in this case is 6.3 square miles, and has a relatively small population, about 6,000, which reflects a very low population density. Because of the location of the community with respect to the New York metropolitan area and the availability of land for development, it is possible and probable that the population will triple in the next decade or two.

Many new homes were constructed in the township following World War II. It was found that subsurface disposal systems, including septic tanks, tile fields, and cesspools, were not feasible or satisfactory because of impervious soil, traprock, and generally high ground water table in this area. Difficulties were encountered in many areas of the township as these new homes were constructed, and serious nuisances were created as more and more homes were built, particularly the development-type homes where the houses were spaced relatively close together.

In order to control and, as a matter of fact, abate a potential health hazard, the municipality initiated a first-stage program of a town-wide sewer plan, which included a central sewage treatment plant of adequate capacity to serve the entire township population and with reserve capacity for future population growth.

The problem of financing such a first-stage program was formidable. In planning a sewer system adequate for long-range requirements, it is necessary to provide large and costly interceptor sewers which will be adequate for anticipated flows 40 or more years hence. Likewise, the installation of a sewage treatment plant cannot be predicated upon the initial flows contemplated, but must be adequate to serve for at least a 15-year period before expansion is necessary. Therefore, the first costs involved, as compared to the number of homes served, generally appears as an impossible financial burden for the smaller community.

However, by a novel arrangement worked out between the township and developers who were proposing additional new home construction in the township, it was possible to initiate a $1,000,000 first-stage sanitary sewerage project without seriously encroaching upon other needed municipal services. As new housing developments were submitted to the Township Planning Board for consideration, rejections were frequent because of unsatisfactory percolation tests. A recently revised and stringent New Jersey State Department of Health Code regulating percolation tests was helpful to the community in preventing home construction where soil was unsatisfactory for septic tank systems.

Builders then proposed the construction of sanitary sewers in their developments, coupled with "package" sewage treatment plants. However, rather than be confronted with several of these plants throughout the township, with prospects of many more in the future, the township proposed the construction of a sanitary sewer system with a central treatment plant provided the builders would pay their fair share toward the cost of the necessary interceptor sewer lines and the central sewage treatment plant.

An agreement was reached between the developers and the township whereby a cash "contribution" or "prepayment" assessment was made toward the proposed municipal sewerage system, based on a charge of $350 per house connected. As a result, the township had pledged or reserved on deposit a total contribution of $165,000 before the start of any construction. In addition, funds were available from a capital improvement fund which had been earmarked by the township for a sewer system which amounted to $150,000. This left a total of $665,000 which had to be raised through the issuance of general obligation bonds and short-term lateral sewer assessment bonds. After an extensive publicity campaign, construction of the first stage of the sewer program was started in 1956.

Before this first-stage program was completed, consisting of interceptor sewers, lateral sewers, a pumping station and force main, and sewage treatment plant, additional contributions totaling over $225,000 were made by other developers and builders desiring to connect to the sewer system which was then under construction. In other words, a total of approximately $400,000 was made available to the township by developers who were willing to pay their fair share of the cost of a sanitary sewer system to which they could connect. While these payments were made toward the cost of the sewerage system constructed by the township, including the central sewage treatment plant and interceptor sewers, each builder was still required to construct lateral sewers and

interceptor sewers passing through his development. None of this cost was borne by the township.

As a result of this program, the township not only succeeded in constructing a central sanitary sewage treatment plant which could serve to treat the sewage from the entire township, as well as some major interceptors leading to the treatment plant, but also succeeded in providing sanitary sewers in essentially all new developments in the township, with the cost of these lateral sewers borne by the developers and builders rather than the township.

Under this first-stage program approximately seven miles of sewers were constructed, under public bidding, with these facilities financed by the township. These facilities now serve about 275 houses. As contrasted to this, the sewers constructed to date by builders and developers in their developments total about eight miles in length, and up to the present they serve about 525 houses. Thus, the total mileage installed under this first-stage program, exclusive of house connections, is about 15 miles in length.

The value of the sewers installed by the township, including pumping station and force main, is approximately $580,000. The estimated value of the sewers constructed in the developments and not financed or paid for by the township, but which have been connected to the first-stage facilities constructed by the municipality, is about $500,000. The value of the central sewage treatment plant—constructed and paid for by the municipality—is approximately $400,000. In summary, the total value of the facilities installed and now in use is approximately $1,500,000, of which the township has had to finance about one-half the cost.

Construction of these facilities was started in 1956, and the treatment plant was placed in operation in June, 1957. At the present time about 800 houses have been connected to the system. Approximately 300 homes per year have been connected to the system since the plant was placed in operation.

Proposed Plan for Extending Sewers Throughout the Township

Upon completion of the first stage of the sewer program, the township carefully weighed the problem of extending the sanitary sewer system to serve other developed areas of the township. A survey was made to determine which areas were most critical, in an endeavor to set up an order of priority for extending the sewer system. Critical conditions were known to exist in many widely scattered areas of the township. Residents in practically every area were desirous of obtaining facilities as soon as possible not only to abate a potential health hazard, but primarily to abate the nuisances which were created in this generally hilly municipality, where overflowing sewage from septic tanks and cesspools would run from one property downstream to the next, with the result that the lowest homes in many neighborhood areas were most seriously affected. This problem was particularly disconcerting because no method of subsurface disposal was found to be effective in eliminating overflowing systems, despite appreciable expenditures and conscientious efforts made by many of the home owners who had serious problems.

In order to extend the sanitary sewers so as eventually to sewer the entire township, it had been proposed to establish a revolving fund by appropriating approximately $50,000 per year with the object of extending the sewer system as far as possible each year and assessing the cost of lateral sewer lines directly to the benefiting property owners. After assessments were made and payments returned to the township, additional moneys would be available each year to continue an annual program of

sewer extension without the necessity of a bond issue.

While this method of construction and financing might normally be feasible where it would be possible to extend the system in gradual stages or extensions as funds were made available, so as to complete the entire system within, perhaps, a five- or ten-year period, this plan could not be adopted for two reasons.

Conditions were found to be most serious in four widely separated areas in the township, in each of which 100 to 200 homes were located. In order to reach any one of these four critical areas, it would first be necessary to construct an interceptor sewer which would provide an outlet for the lateral sewers in each area. Therefore, the township was confronted with a relatively large initial expenditure for the construction of an interceptor sewer to reach any one of the four trouble areas. Following the construction of the interceptor, with an annual appropriation of $50,000 available, it would then require several years to sewer the area. Thus, with a program of limited construction each year, several years would be required to completely eliminate a potential health hazard and nuisance in one area only, and the benefits of a partial construction program each year would not be realized or fully remedy the nuisance until an entire area had been sewered.

The second reason which dictated against a program of limited construction each year was that it was difficult to establish a priority for providing sewer service to any one of these four areas.

The township gave serious study to the problem of the impact on the tax rate if the entire sewer program were undertaken in one stage. In reviewing the cost of the plan for serving essentially all of the critical areas of the township, the problem of financing the estimated expenditure of $1,200,000, which would be required to sewer the remaining developed areas of the township, was not easy to resolve. Besides the impact on the tax rate, the township would be exceeding its statutory debt limit.

A detailed study of the possibility of financing such a program was made by the township and its financial advisers, and it was found that the necessary bond program could be financed with an annual retirement of $50,000, which would pay off both the necessary ten-year sewer assessment bonds for the lateral sewers and 30-year general obligation bonds for the interceptor sewers. Thus, the impact on the tax rate would be essentially the same as an annual appropriation of $50,000 each year for a limited sewer construction program. It was therefore decided that this would be the most logical method of proceeding, and the township obtained the necessary "order of necessity" to exceed its debt limit from the State Department of Local Government so as to finance this sewer program under a bond issue.

After obtaining the "order of necessity" and presenting the proposed sewer program to the people, outlining both the cost factors and the probable time schedule which could be met, the township then embarked upon the second stage of its sanitary sewer program. This second-stage program is now under way.

In order to provide sewer service to the four critical areas of the township, it will be necessary to construct interceptor sewers, which will be sized not only to serve the homes in these areas, but also to provide capacity for the potential, ultimate development of the tributary land areas.

The estimated cost of the four interceptor sewer lines is $300,000, which as an average is approximately $75,000 for each of the four areas.

In addition to the cost of the inter-

ceptor sewers, the cost of lateral sewers to serve all of the houses in the four areas has been estimated at approximately $600,000, or an average of $150,000 for each area. Thus, a total additional expenditure of $900,000 will be required to provide sanitary sewer facilities initially for approximately 500 homes.

In addition to providing service for these four areas in the township, there are approximately six miles of streets which can be served by constructing lateral sewers in streets and connecting with the basic sewer lines completed under the first-stage program or which have been constructed by developers in new housing developments. The estimated cost of installing the six miles of lateral sewers is approximately $300,000. Thus, the estimated total cost of extending the sewer system so as to serve the balance of the township under the second-stage program is about $1,200,000.

The township has proceeded with the following plan:

A. Extension of lateral sewers in existing streets where sewer connections can be made directly to existing facilities.

B. Acquisition of rights-of-way and easements through private property, which is necessary prior to advertisement for construction of the interceptor sewers.

C. Design of lateral sewers in the four areas of the township which will be served by interceptor sewers.

Under this program, which was adopted in 1958, the township has already awarded three contracts for the construction of lateral sewers in existing streets. These lateral sewers will serve approximately 300 houses.

The township has also proceeded with surveys and acquisition of easements for the construction of interceptor sewers and has applied for federal aid for the interceptor sewer lines. The township plans to advertise for construction of these four interceptor sewers, and it is anticipated that this construction work will be under way by the early part of 1960. By the time the interceptor sewers are ready for use, it is anticipated that contracts will have been let for the construction of lateral sewers in the four critical areas of the township.

In summary, by the fall of 1960 it appears that what had started off as a first-stage, limited sewer project, designed eventually to provide sewer service for the entire township of about 6.3 square miles in area, will have been expanded to a point where about 75 per cent to 85 per cent of the township will have been sewered. It has been estimated that approximately 1,600 homes will be sewered and that the expenditure by the township for these facilities will be approximately $2,200,000. The total value of sewerage facilities in the township will be approximately $3,000,000 or more, as a result of the construction of sewers by the township and by home builders.

Request for Service from Neighboring Communities

Because some of the adjoining communities have similar problems and through witnessing the growth of the sanitary sewer system in Berkeley Heights, preliminary inquiries have been received for extension of service to adjoining areas. In view of the fact that the township has a treatment plant which is capable of treating the sewage flow from approximately 3,000 homes and with a foreseeable loading of about 1,600-2,000 homes, the township is giving serious consideration to providing service for the treatment of sewage from an adjoining municipality. Contract negotiations are now under way which may lead to the use of the Berkeley Heights sewage treatment plant by a neighboring community. An annual rental charge would be established for the use of the plant, based

upon the number of homes connected, as well as an annual payment to cover the cost of treatment plus a reasonable overhead charge.

In order to assess the cost of plant operation against those home owners directly benefited, the township has established an annual sewage treatment charge of $20 per home connected. This charge is sufficient to cover the cost of treatment and to maintain the pumping stations and sewer system. As more homes are connected to the system, the cost of plant operation will increase only slightly. Thus, it is anticipated that in the relatively near future, income from the sewer service charge will be somewhat in excess of annual requirements for treatment and operation, and it will provide a reserve for reduction of bond issues and a fund to cover the cost of future expansion of the sewage treatment plant facilities.

Conclusion

In a period of approximately five years, the township of Berkeley Heights initiated a program of providing a sanitary sewer system which would be financially feasible and would provide service for the entire township. In three years, under the first-stage program, approximately 800 homes have actually been sewered, and under the second-stage program, which is now under way, service will be provided for 800 additional homes.

The project was feasible because of the ability of the township to obtain cooperation from developers and builders of new homes, who contributed from $350 to $450 for each home constructed, or a total of about $400,000, toward the central treatment plant facilities and the basic first-stage interceptor sewers required. In addition, these builders constructed their own lateral sewers and extended interceptor sewers through their developments so as to provide an outlet for certain portions of the township adjacent to their areas. By establishing a reasonable annual sewer charge of $20, annual costs of plant operation were met by home owners served by sewers.

Sewer service may now be extended to adjoining municipalities, so that an income will be derived from unused plant capacity and a fund set aside for the future expansion of the treatment plant facilities or to retire the present sewer bond issues. In the future, as new homes are constructed in the township, sewers can be constructed by developers and the necessity for township-sponsored facilities will be minimized and eventually eliminated.

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This paper was presented before a Joint Session of the Conference of Municipal Public Health Engineers, the Conference of State Sanitary Engineers, the National Association of Sanitarians, and the Engineering and Sanitation Section of the American Public Health Association at the Eighty-Seventh Annual Meeting in Atlantic City, N. J., October 19, 1959.

A survey of background radiation in Arkansas is presented. In addition the author discusses other elements that contribute to radiation in air, water, and other materials.

ARKANSAS RADIOLOGICAL BACKGROUND SURVEY

Edward F. Wilson, M.P.H.

Purpose

THE ORIGINAL INTENT of this survey was to obtain information as to the present level of background radiation in the public water supplies of the state of Arkansas. Several months after this program was started, it was found necessary to include rainwater samples as a part of the study because of the amount of radioactivity encountered in rain, and consequently in cisterns. On June 1, 1957, we became a member of the U. S. Public Health Service Radiation Surveillance Network, which includes air sampling along with precipitation monitoring.

Natural Background

Natural background[1] is important from a public health point of view because the significance of added radioactivity to our environment is dependent upon the relative increase in background radiation. The correlation of quantities of natural occurring radioisotopes that are present in our environment, with their ingestion and assimilation, may serve to indicate potential hazards from added pollutants. It is important in low level counting and survey monitoring because of its interferences.

It is interesting to note the origin of natural background. First to be considered is cosmic radiation,[3] as it is an important contributor. In the earth's atmosphere it consists mainly of protons, alpha particles and a small amount of heavier nuclei. At sea level, where cosmic radiation is considered to be all secondary emissions, it contributes about 25 per cent of the total background dosage. Carbon-14 and tritium are produced by the reaction of cosmic ray neutrons with nitrogen atoms in the air. Carbon atoms combine with oxygen to form $C^{14}O_2$ which is absorbed in plants. Carbon-14 is one of the most important internal radiation emitters in the body.

The second major source of natural background radiation is termed terrestrial radiation. It consists principally of the naturally occurring radioisotopes of uranium, thorium, and the actinium series and some 12 singly occurring radioisotopes. On a weight basis, thorium-232, uranium-238, and potassium-40 are the major contributors. From a distribution and activity standpoint, the most important are carbon-14, potassium-40, radium-226, thorium-232, and uranium-238, and the decay daughters of the last three. In an average square mile of the earth's crust, one foot deep, there are approximately 18 tons of thorium-232, nine tons of uranium-238,

and three tons of potassium-40 containing approximately 50 curies of these radioisotopes.

As ground waters[4] tend to dissolve small amounts of these radioisotopes they give a normal gross activity of surface waters of 10^{-10} to 10^{-8} microcuries per milliliter. These values are exclusive of radium and tritium loss during sample preparation. This activity is due primarily to radium-226. In comparing the natural background of 10^{-10} to 10^{-8} μc/ml to the NBS suggested maximum permissible concentration[2] of 10^{-7} μc/ml of unknown alpha and beta emitters, we see what a small order-of-magnitude tolerance we have for drinking waters. This emphasizes the need for specific background data on those components that are biologically important potential hazards. These data will be invaluable in case of future radioactive contamination of streams and water supplies.

The radioisotopes that are originally present in rock type formations are leached into the water, evolved into the air, and assimilated into various food material. For instance, radium-226 is present in some of the common foods in the order of 10^{-10} to 10^{-8} μc/gram, while the potassium-40 content of milk is in the order of 10^{-6} to 10^{-5} μc/ml. In the few milk samples we have run in our laboratory, we have found between 1,500 and 2,000 $\mu\mu$c/liter, 10^{-6} μc/ml.

In taking all the background from naturally occurring sources we find the following:

Cosmic — 30 mr/yr at sea level
Terrestrial — 100 mr/yr over igneous rocks

This gives an exposure over a lifetime of approximately 9r. In comparison we find our exposure to artificial source in this order:

X-rays — 100 mr/yr
Building materials — 25 mr/yr
Fallout — 3 mr/yr

Table 1

Isotope	Body Content (μc)	Dose Rate (mrad/yr)
Radium-226	0.0002	10
Potassium-40	0.2	20
Carbon-14	0.08	2

In addition to those sources that are classed as external radiation sources, we are also exposed to most of the same isotopes as internal emitters after their ingestion. The most important of the internal emitters are potassium-40, carbon-14, and radium-226 and its daughters. Potassium-40 is the most important and is found in the muscle tissues, while carbon-14 is next important as far as activity is concerned. Table 1 gives the three most important isotopes in the body and its exposure from them.

Fallout and some nuclear installations have increased background to some extent (air, water, and probably foods). The USPHS reported that in 1956, approximately 70 per cent of the air samples collected contained beta fallout particles equivalent to 2×10^{-12} μc/ml and 30 per cent greater than 3×10^{-12} μc/ml.

Maximum Permissible Concentrations[5-10]

Until fairly recently our experiences with radioisotopes have been with sources outside the body and radiation from radium in the body. Exposure to x or gamma radiation from sources outside the body should be limited to 300 milliroentgens per week and skeletal content of radium should be limited to 0.1 μc. These values are called Maximum Permissible Concentrations. They are mentioned because the MPC values for other radioisotopes are based on them. For instance, the MPC for strontium-89 is approximately 20 times that of radium, that is 2 μc. For those

radioisotopes that concentrate in the body tissue rather than the skeleton, the MPC values are based on the quantity required to irradiate the tissue to the MPC of 300 milliroentgens per week.

The MPC values of the radioisotopes are listed in Table 3 of NBS Handbook 52 along with the organ of the body associated with each. Some of the most important are the deposition of strontium and neobium in bone, concentration of cesium in the muscles, and of iodine in the thyroid gland.

The measurement of radioactivity does not identify the radioactive materal involved. It is necessary to carry out a chemical analysis in order to interpret the measurement. So long as the measured activity is below the MPC of any radioisotope which might be in the sample, it is usually not necessary to make a chemical analysis to determine if the air, food, or water is safe. These considerations have led to the establishment of very low MPC values for alpha- and beta-emitting materials of unknown isotopic composition. For water the MPC value is 100 $\mu\mu$c/liter for use over an indefinite period of time. It is important to note that the MPC values in Handbook 52 refer to concentrations above background in the case of radioactive contaminants referred to in Table 2.

Provisional Levels of Permissible Concentration of Radioactive Contaminants for Use Beyond the Control Area (Oct., 1953)

Medium in Which Contained	Beta or Gamma Emitter (μc/ml)	Alpha Emitter (μc/ml)
Air	10^{-9}	5×10^{-13}
Water	10^{-7}	10^{-7}

Radioactive Fallout

In general there are three components of radioactive fallout[7] from nuclear explosions: (a) particles created by the fissioning process, (b) particles having induced activity from neutrons released during the explosion, and (c) the unfissioned, alpha-emitting material of the bomb itself. Induced activity and alpha emission account for negligible proportions of the total.

The fallout material[6] includes a number of radioisotopes some of which are of more concern as internal emitters than others. The Division of Biology and Medicine[5] of the Atomic Energy Commission gives an MPC value for mixed fissioned products following a nuclear detonation at 100 microcuries per cubic meter of air average over a 24-hour period. For particles between 0.5 and 5 micron, the MPC is 1 micro-

Table 2—Suggested Emergency Levels for Radioactive Contamination of Drinking Water in Period Immediately Following Bomb Blast[5]

Time H_2O Is to Be Consumed	Proposed Maximum Beta-Gamma Activity Levels			
	Safe		Acceptable Risk	
	Curies/cc	DPM/cc	Curies/cc	DPM/cc
10 days	3.5×10^{-9}	7.7×10^{2}	9×10^{-8}	2.0×10^{5}
30 days	1.1×10^{-9}	2.6×10^{2}	3×10^{-8}	7.0×10^{4}
	Proposed Maximum Alpha Activity Levels			
10 days	2×10^{-10}	440	5×10^{-9}	1.1×10^{4}
30 days	6.7×10^{-11}	145	1.7×10^{-9}	3.7×10^{3}

curie per cubic meter because of their retention in the lungs. Listed in Table 2 is the AEC suggested emergency tolerances for drinking water.

The Health and Safety Laboratory of the U. S. Atomic Energy Commission has been collecting data on fallout from some 89 sampling stations. In their 1955 summary based on beta counts they estimated that the accumulation of total fission products deposited in United States varies from 21 to 120 in millicuries per square mile, giving a mean average of 61 mc per square mile. The strontium-90 accumulation in eastern United States in 1958 was about 50 mc per square mile.

Fragments of bomb debris[10] from the Pacific and other tests are now turning up in the bones of people all over the world, particularly strontium-90. Data on long-range fallout[11] from the tests are relevant to the understanding of the uptake and distribution in biological materials. First, all nuclear explosions produce strontium-90 together with other fission products. Second, the physical form and distribution of the debris depend on the mode of firing and the power. Third, the greater part of the cumulative fallout to date has been due to H-bomb tests. Fourth, most of the fallout occurs in rain.

The key link[10] in the "bomb-to-bomb" transport of strontium-90 is the uptake of the fallout by grazing dairy cattle and its subsequent incorporation in dairy products. The chain of events leading to uptake in cattle is long and in some cases not well understood. Strontium-90 is a product of a fission in a bomb explosion. Krypton-90 with a half-life of 33 seconds decays to rubidium-90 whose half-life is approximately three minutes thence to strontium-90 with a half-life of 29 years. Local fallout of strontium-90 is small because of its origin as a gas. The strontium-90 produced from these high yield weapons goes into the stratosphere, where it stays from two to ten years. The strontium-90 enters the troposphere and it is subsequently washed out by the precipitation.

Measurement of Low Level Radioactivity

Water

As previously mentioned the levels at which radioisotopes may present a hazard are very low. Specifically, the level for radium-226 is 40 $\mu\mu c$ while strontium-90 is 800 $\mu\mu c$/liter and for unknown alpha or beta emitters it is 100 $\mu\mu c$. The MPC value of 100 $\mu\mu c$/liter is 222 disintegrations per minute per liter. To detect increases in activity early, it is necessary to have a method of assay well below the MPC value.[13] The determination of gross alpha and beta activities below the MPC is useful in pollutional control and in establishing background information. For values that are near or above the MPC further analysis is required to evaluate the potential health hazard. We have not progressed to this point in our work. We are measuring only gross alpha and beta activities.

The method used in our laboratory was developed at the Robert A. Taft Sanitary Engineering Center.[12-14] It is a simplified procedure for determining the approximate gross alpha and beta activity of waters at levels as low as 10^{-8} μc/ml or 10 $\mu\mu c$/liter. Measurements in this range are necessary in order to determine natural background radiation and to detect increases before they reach dangerous levels. This method is not intended to measure all the activity of all the materials present because the radioactive gases and volatile material will be lost during evaporation. Other than these exceptions, this procedure gives acceptable results.

A degree of standardization on methods for determining low level activity in water is desirable for com-

parison with other laboratories at various times. Eventually this should lead to a standard method.

The method we use consists of evaporating the sample of water to a small volume, transferring it to a planchet and counting for alpha and beta activity. At present we are using an internal proportional counter manufactured by Nuclear Measurements Corporation.

In 1956, gross activity in the treated water of 30 surface supplies was assayed. Of the 30 assayed 17 showed some activity, 16 were less than 10 $\mu\mu c$/liter, and one showed 23 $\mu\mu c$/liter. In the 46 well supplies examined that year, seven showed some activity. It ranged from 4.1 to 25 $\mu\mu c$/liter.

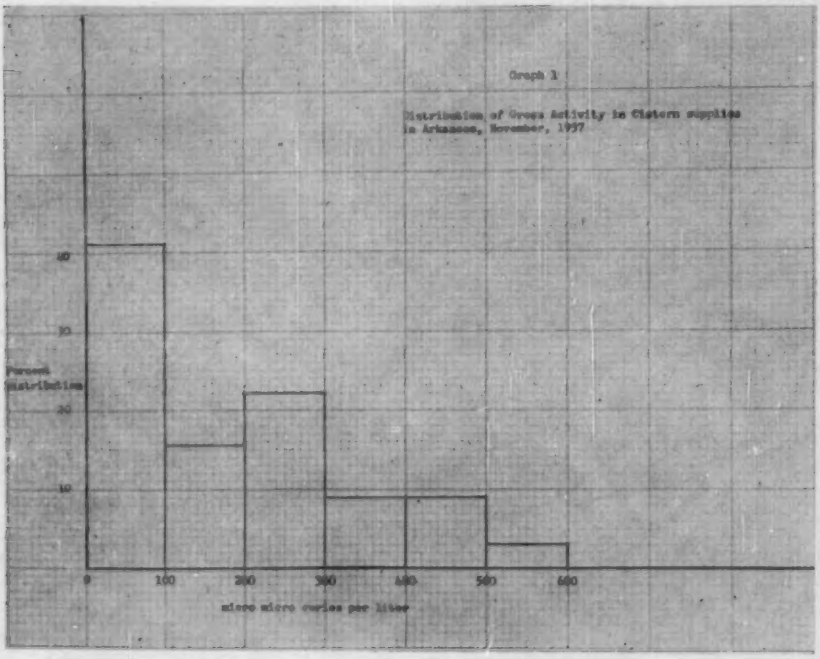
In 1957, 32 surface supplies were examined and 23 showed detectable activity ranging from 4 to 83 $\mu\mu c$/ liter.

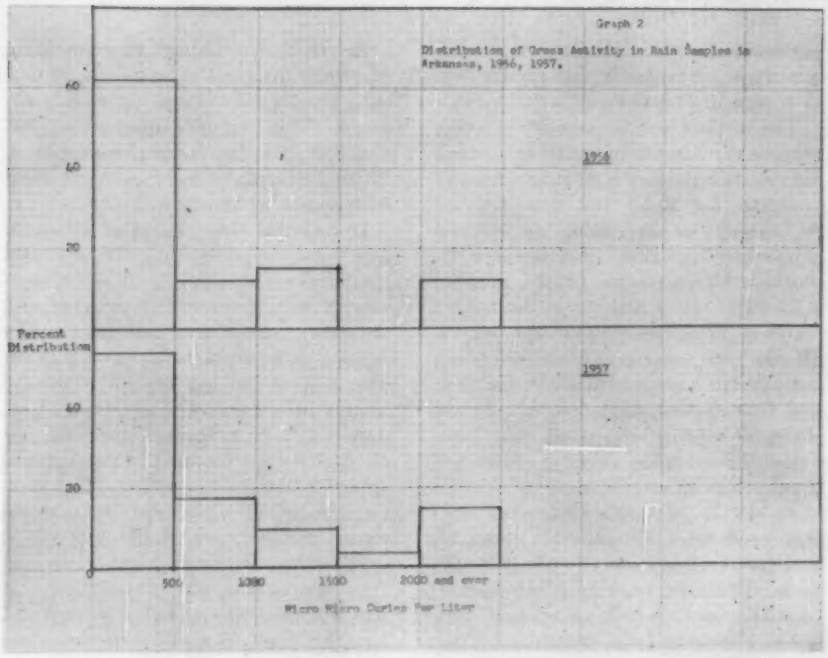
In 1958 we examined ten surface supplies and five have shown some activity ranging from 4 to 23 $\mu\mu c$/liter.

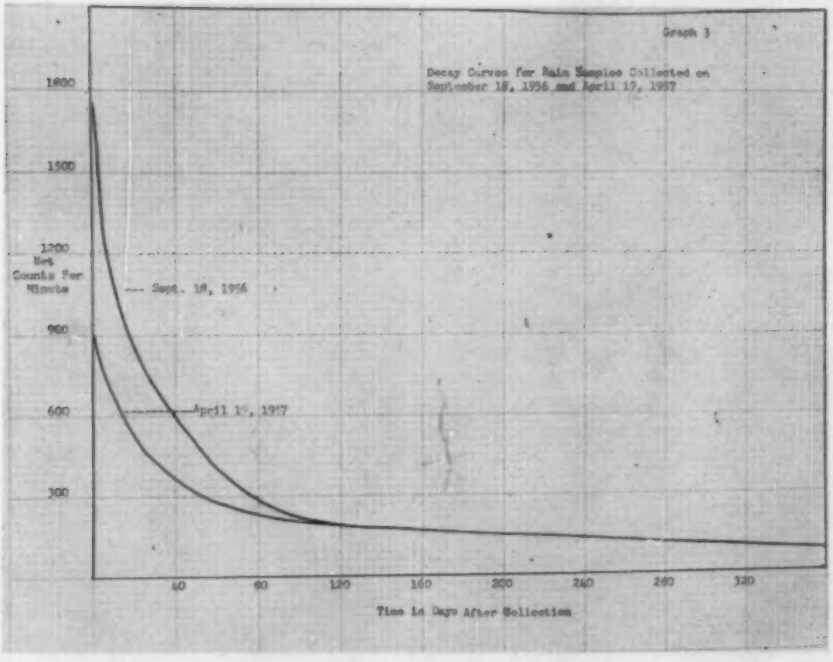
In 1957, 33 cistern supplies were examined for gross activity. In all but one sample detectable activity was found. They ranged from 35 to 728 $\mu\mu c$/liter. Of the 33 samples examined, 19 showed activity over 100 $\mu\mu c$/liter. Distribution is shown in Graph 1.

During this same period of time rain water was collected and examined with the following results. In 1956, 26 samples of rain water were collected and the gross activity was determined. The range was from 81 to 15,147 $\mu\mu c$/liter. The highest amount of alpha detected in this period was 17.5 $\mu\mu c$/liter.

In 1957, 71 samples of rain and one of snow were examined. These ranged from 66 to 60,030 $\mu\mu c$/liter. The highest amount of alpha activity detected during the year was 3,200 $\mu\mu c$ and it occurred in the same sample of rain that showed the 60,030 $\mu\mu c$/liter. It was this rain that caused us to stop and consider the effect of these rains on




Graph 2
Distribution of Gross Activity in Rain Samples in Arkansas, 1956, 1957.
1956
1957
Percent Distribution
60
40
20
0
40
30
500
1000
1500
2000 and over
Micro Micro Curies Per Liter


Graph 3
Decay Curves for Rain Samples Collected on September 18, 1956 and April 19, 1957
1800
1500
1200
Net Counts Per Minute
Sept. 18, 1956
April 19, 1957
900
600
300
40
80
120
160
200
240
280
320
Time in Days After Collection

cistern supplies. Graph 2 shows distribution of rain for 1956 and 1957 along with decay curves in Graphs 3 and 4.

In 1958, 12 precipitation samples have been examined and they range from 182 to 4,160 $\mu\mu c$/liter, the highest amount of alpha detected being 59 $\mu\mu c$. Graphs 3 and 4 show decay curves on four rain samples collected during 1956 and 1957.

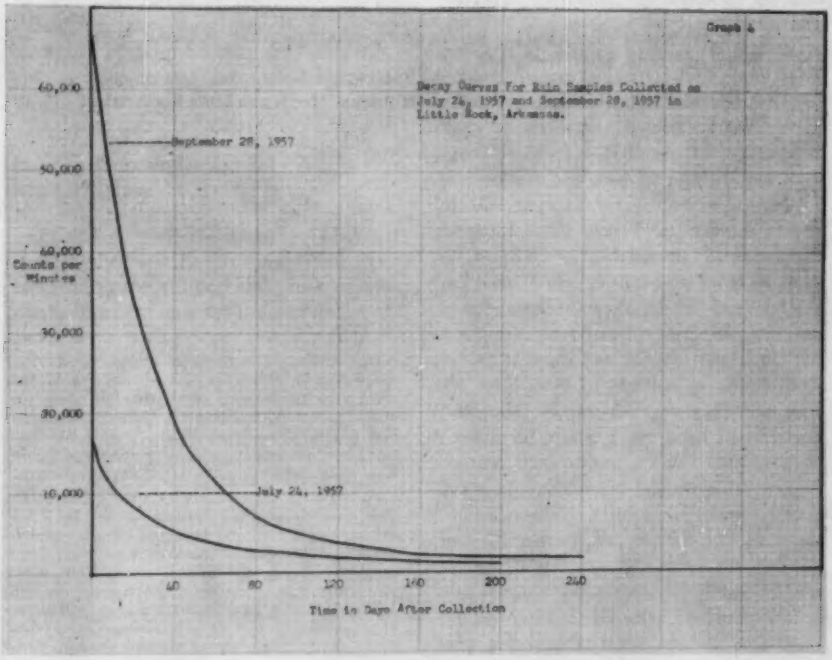
Air Samples

The air samples are taken in cooperation with the U. S. Public Health Service, Bureau of State Services. The equipment involved is one high volume air sampler and one g-m meter. At the present time, samples are taken continuously 24 hours a day, seven days a week. Results are reported in micro microcuries per cubic meter of air. The MPC given by Handbook 52 is 1,000 micro microcuries per cubic meter of air of unknown alpha and beta activities.

Our participation in this program began on June 1, 1957, and since that time we have collected 202 air samples, the range being from approximately 0.5 to 67 $\mu\mu c$ beta activity per cubic meter of air. The following data were obtained for the entire operation period:

Beta Activity $\mu\mu c/m^3$	Number of Samples
0–10	182
10–20	13
20–30	1
30–40	5
40–50	0
50–60	0
60–70	1

At present the apparent background radiation for air is approximately 1.5 micro microcuries per cubic meter of air beta activity.



Summary

Natural background comes from cosmic radiation and terrestrial radiation and exposes the population to a lifetime dose of 9 roentgen. In comparison, the population is exposed to a lifetime dose of approximately 9 roentgen from artificial sources. In many cases, the testing of nuclear devices has increased the background level of air, water, and probably foods. Graphs and tables have been presented to show the distribution of gross activities in air, rain, cistern, surface, and well supplies. It appears that the next step would be to determine the radioisotopes responsible for the activity in those supplies that are approaching or are over the MPC values for unknown alpha and beta emitters.

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Coverage of hospitalized mental illness through prepayment is considered desirable. This comprehensive review of the current situation indicates how far we still have to go to reach the goal.

HEALTH INSURANCE COVERAGE OF HOSPITAL CARE FOR MENTAL ILLNESS

Louis S. Reed, Ph.D., F.A.P.H.A.

SOME HEALTH INSURANCE PLANS either exclude mental illness from coverage or give less coverage than for other types of illness. These practices are of importance to the subscribing public, hospitals, and the medical profession and are frequently a source of complaint. It is the purpose of this article to describe the existing situation and to deal with some of the problems involved in providing health insurance coverage of hospital care and of physician service in the hospital for mental illness.*

Existing Hospitalization for Mental Illness

In order to see the situation whole, it is well to review briefly the salient facts concerning the volume and place of hospitalization for mental illness.†

In terms of days of service, more hospital care is provided for patients suffering from psychiatric illnesses than for patients of all other diagnoses together. However, admissions for psychiatric illness constitute only 2 or 3 per cent of the total.

Of all hospitalization for psychiatric diagnoses in the United States, about 95 to 97 per cent, in terms of days of service, is provided in psychiatric hospitals and about 3 to 5 per cent in general hospitals. In 1957, there were 350,000 admissions to, and 246,000,000 days of service in, psychiatric hospitals (see Table 1). Of these, 14 per cent of the admissions and almost 10 per cent of the days of service were in federal hospitals. Of the total admissions to all nonfederal psychiatric hospitals, 72 per cent were to state or local government mental hospitals, 13 per cent to nonprofit psychiatric, and 15 per cent to proprietary psychiatric hospitals. Of the total days of service in all of these hospitals, 96 per cent were in the state mental hospitals, 2 per cent in city and county institutions, and 2 per cent in the nongovernment hospitals.

The average number of days of care per admission was 1,010 in the state mental hospitals, 726 days in the city and county hospitals, 75 days in the nonprofit, and 48 days in the proprietary psychiatric hospitals.

* The problems involved in insurance coverage of psychiatric care in the office and home are quite different from those dealt with here. Obviously, the greater development of office and home coverage of psychiatric illness will hinge upon the growth of insurance programs covering physician service in the office and home generally.

† The terms mental illness, mental and nervous conditions, and psychiatric illness are used synonymously and, in general, mean the types of illnesses generally cared for in mental or psychiatric hospitals, i.e., principally psychotic, psychoneurotic and personality disorders. Disorders due to use of alcohol and drug addiction would be included.

Table 1—Hospitalization for Mental Illness, 1957

Type and Control of Hospitals	Admissions		Days of Service		Average Number of Days of Care per Admission
	Number	Per cent	Number (000)	Per cent	
Psychiatric hospitals					
Total	350,383		245,687		701
Federal	47,557		23,342		491
Nonfederal total	302,826	100.0	222,345	100.0	734
State	210,361	69.4	212,439	95.5	1,010
City and county	6,535	2.2	4,744	2.1	726
Nonprofit	39,432	13.0	2,949	1.3	75
Proprietary	46,498	15.4	2,212	1.0	48
General hospitals					
Total	N.A.		6,150	100.0	N.A.
Federal	"		3,221	52.3	"
Nonfederal	"		2,929	47.7	"
State and local governments	"		1,428	23.2	"
Private	"		1,501	24.5	"

Source: Hospitals, "Guide Issue," August, 1958, various tables. Data for general hospitals were calculated from Table 18, showing number of beds allocated for psychiatric patients, on assumption that such beds are occupied to the same extent as all beds in these hospitals. These figures are a gross understatement of the volume of such care, since many general hospitals accept psychiatric cases without having a formal allocation of beds for such patients.

To my knowledge there are no comprehensive national statistics on the extent of care for psychiatric patients in general hospitals. In 1957, general hospitals which reported an allocation of beds for specific types of cases had 21,200 beds allocated for psychiatric patients (see Table 1). (Fifty-two per cent of these were in federal hospitals.) If one assumes that these beds were occupied to the same extent as other beds in these hospitals, then it may be estimated that these hospitals provided, in 1957, about 6,150,000 days of service to psychiatric patients—a volume of service equivalent to 2½ per cent of the total days of care provided to psychiatric patients in psychiatric hospitals. This is certainly a gross understatement of the volume of care provided by general hospitals to psychiatric patients, since many hospitals without a formal allocation of beds to psychiatric patients do provide care to such patients.

In 1955, of 530 nonfederal general hospitals known to admit patients with diagnosis of known or suspected mental illness, 333 reported a total of 160,700 admissions in that year of patients with psychiatric diagnoses.[1] This number of admissions is equal to more than half of the number of admissions to all nonfederal psychiatric hospitals.

Practices of Health Insurance Plans in Covering Hospitalized Mental Illness

Of the more than 121,000,000 persons in the United States with some insurance or prepayment protection

against the cost of hospital care, roughly 35 per cent have protection through group policies issued by insurance companies; 21 per cent through individual policies of insurance companies; 40 per cent through Blue Cross plans;* and 4 per cent through other—the so-called "independent"—plans.[2]

Surgery is relatively unimportant in the care of mental illness. As regards physician service in the hospital, of the approximately 72,000,000 people with some insurance protection against its cost, a little less than half are protected through Blue Shield plans, about the same proportion through insurance companies, and about 7 per cent through other types of plans.

Insurance Companies

Insurance companies under their group basic hospital, surgical, and medical policies virtually without exception provide the same coverage for mental as for all other conditions and without discrimination as to type of hospital. Under individual policies sold by insurance companies there is more variation. However, the great majority of these policies cover mental illness on the same terms and to the same extent as all other types of illness.

More than 13,000,000 persons have major medical expense coverage under policies issued by insurance companies; the vast majority of these are covered under group policies. Virtually all group policies of this type provide the same coverage for hospitalized mental as for other hospitalized illness.† Again, a small percentage of individual major medical policies may exclude mental illness.

* And a few Blue Shield plans which cover hospital care.

† As regards physician service in the office and home, many, probably most, major medical policies give less coverage of mental than of other conditions, i.e., they will reimburse outlays for such services to the extent of only 50 per cent in mental illness in contrast with 75 or 80 per cent in other types of illnesses.

Blue Cross Plans

Most Blue Cross plans were started by persons associated with general hospitals who were concerned with the types of cases cared for in these hospitals. Hence, in the beginning, almost all the plans excluded mental and nervous conditions from coverage. Since then there has been considerable movement toward coverage.

It is difficult to summarize the present extent of coverage of mental illness by the Blue Cross plans, since most plans offer a considerable variety of subscriber contracts with different benefits and benefit durations and in many cases different provisions as regards coverage of nervous and mental conditions. Data on the number of subscribers who are covered under each of the different contracts are not available.

In general, the plans provide far less extensive coverage of mental illness than of other types of illness in general hospitals, and they provide far less extensive coverage of mental illness in mental than in general hospitals. The coverage of mental illness is less extensive in public than in private mental hospitals.

Under their most comprehensive contracts, as of January, 1958, of the 79 plans in the continental United States, 19 excluded all coverage of mental and nervous conditions in general hospitals and six covered only until the condition was diagnosed as a mental illness. The remaining 54 plans gave some coverage, but only 15 provided the same degree of coverage for mental and nervous conditions in general hospitals as they did for all other conditions.

Of the 79 plans, 38 exclude all coverage in private mental hospitals and 41 in public mental hospitals. Only a handful of plans offer the same benefits for mental conditions in mental hospitals as they offer for general conditions in general hospitals.

The number of days of benefits pro-

Table 2—Blue Cross Coverage for General Conditions and for Mental and Nervous Conditions in General and Mental Hospitals, as of January, 1958

Number of Plans Providing Specified Coverage Under Most Comprehensive Contract

Days of Full Benefit Care per Admission or Year	General Conditions	Mental Conditions		
		General Hospitals	Private Mental Hospitals	Public Mental Hospitals
No coverage	0	19	38	41
Covered until diagnosed	0	6	0	0
For shock therapy and surgery only	0	1	1	1
1– 10	0	3	2	2
11– 20	0	4	3	3
21– 30	8	25	23	22
31– 60	5	4	3	3
61– 90	22	2	2	2
91–120	29	8	5	4
121–180	2	2	0	0
181–365	5	0	0	0
366–730	7	4	2	1
731–850	1	1	0	0
Total	79	79	79	79

Source: Compiled from data in "Blue Cross Guide," January, 1958.

vided (under their most comprehensive contracts) for general conditions and for mental conditions in general hospitals and in private and public mental hospitals is set forth in Table 2. The majority of plans now offer between 61 and 120 days of care for general illness, 15 provide from 120 up to 850 days of benefits. As regards mental conditions, in general hospitals, 19 exclude all coverage, six cover until diagnosis, one covers for shock therapy and surgery only, seven give between one and 20 days of benefits for such cases, 25 between 21 and 30 days, six between 31 and 90 days, eight between 91 and 120, and seven from 121 to 850 days of coverage.

In private mental hospitals, 38 exclude mental illness entirely, one covers for shock therapy and surgery only, five give between one and 20 days of care, 23 between 21 and 30 days, five between 31 and 90, five between 91 and 120, and two provide more than 121 days of benefits. As already indicated, the coverage in public mental hospitals is a little less.

The above, to reiterate, reflects the coverage provided under the most comprehensive contracts offered by the respective plans. The degree of coverage provided under the most widely held contracts of the plans would, of course, be distinctly less.

Restrictions on, or exclusion of, coverage for alcoholism, drug addiction, and self-inflicted injuries may be regarded as a special case of restriction on coverage of mental illness. As shown in Table 3, 34 of the 79 plans exclude coverage for alcoholism, 23 cover on the same terms as other conditions, and the remainder provide a

limited coverage. The situation as regards drug addiction is about the same. The great majority of the plans cover self-inflicted injuries in full or to a limited extent; only eight plans exclude service for such injuries.

Over the years the trend has been toward better coverage of mental and nervous conditions. Thus, in 1946, approximately half of the Blue Cross plans excluded all coverage of mental conditions, and only five out of 81 plans provided benefits in general hospitals for such cases for as long as 31 days.

Blue Shield Plans

Of the 64 Blue Shield plans in the continental United States, 22 specifically exclude any kind of care for mental and nervous disorders under their basic certificates. Three plans do not offer any type of medical coverage, i.e., they restrict themselves to surgery only. The remaining 39 plans provide benefits for nervous and mental disorders. Of these, 15 provide the same coverage as for other medical conditions, and 24 provide only limited coverage.[3]

In general, the Blue Shield plans provide benefits for nervous and mental conditions only when the patient is being cared for in a general hospital. Care received in private or public mental hospitals is almost always excluded. This exclusion is not important in practice since in public and private mental hospitals medical service is provided by salaried physicians and the cost of their services is included in the cost of care in the institution.

Independent Plans

Several of the independent plans give some coverage of hospital care and physician service in the hospital, and also in the office and home, for mental illness; several do not. The medical program of the United Mine Workers Welfare and Retirement Fund—which serves close to a million people and is

Table 3—Blue Cross Coverage of Alcoholism, Drug Addiction, and Self-Inflicted Injuries, January, 1958

Number of Plans with Designated Provisions Under Most Comprehensive Contract

	Alcoholism	Drug Addiction	Self-Inflicted Injuries
Not covered	34	31	8
Covered to same extent as general conditions	23	30	62
Covered but in participating or general hospitals only	6	5	4
Covered in all hospitals but for fewer days than other conditions	10	7	3
Covered in participating or general hospitals only but for fewer days than other conditions	6	5	1
Covered in participating or general hospitals, and covered in other hospitals but for fewer days than other conditions	0	1	1
Total	79	79	79

Source: Compiled from data in "Blue Cross Guide," January, 1958.

the largest single independent plan—will provide unlimited care for mental patients in general hospitals. It pays for care in mental hospitals only when it is likely that the patient will respond to care in a relatively short period.

The Health Insurance Plan of Greater New York, which provides physician service in the office, home, and hospital, excludes care for alcoholism, drug addiction, and psychiatric disorders after diagnosis for which care is customarily provided by a psychiatrist. The Kaiser Foundation Health Plan, which provides service through its own medical groups and hospitals, excludes care for mental illnesses and disorders, attempts at suicide, and alcoholism. The Group Health Association in Washington excludes psychiatric treatment and hospital care for mental conditions. Probably most of the prepayment programs operated by industrial companies, employee associations and unions in so far as they cover hospital care, exclude such care for mental conditions. Group Health Insurance in New York City, which covers physician service in the office, home, and hospital, has recently announced an experimental project wherein it will provide coverage of psychiatric service to a limited extent for a representative sample group of its subscribers.

The Desirability of Coverage of Mental Conditions

As a general proposition, there can be little question as to the need for and desirability of health insurance coverage of mental illness. People need protection against the costs. Subscribers who suddenly find that a member of the family requires hospitalization for psychiatric diagnosis or care are frequently upset when they discover the needed care is excluded under their contract. Insurance protection, by removing or lowering the financial barrier, would enable persons needing hospitalization because of mental illness to receive such care promptly, and this is certainly in the public interest.

For nongovernment hospitals, insurance coverage of their service for psychiatric patients is important. An increasing number of general hospitals are developing psychiatric units. Blue Cross and other insurance coverage of mental illness helps these hospitals to maintain their psychiatric units and will encourage other general hospitals to develop such units.

Admissions to private psychiatric hospitals constitute 28 per cent of the admissions to all nonfederal psychiatric hospitals. The average length of patient stay in these hospitals is only 60 days. They constitute a valuable resource in the care of the mentally ill, and it is important for them that their services be covered under health insurance.

Psychiatrists serving psychiatric patients would naturally like to have their services covered by insurance. It irks and annoys them that, as they see it, "they are discriminated against" in the operation of the Blue Cross and Blue Shield plans.

Problems in the Coverage of Mental Illness

Total health insurance coverage of hospital care for mental illness presents quite different problems than total coverage of general illness because of the radical difference in length of stay. The average length of stay in all short- and long-term nonfederal general hospitals in the United States is 8.7 days; the average number of patient days per admission in all nonfederal psychiatric hospitals is 734 days.

In general illness, a prepayment or insurance contract providing 120 days of benefits per admission will give complete coverage in about 99.9 per cent of all hospital cases and will probably cover 95-98 per cent of all days of care.

In psychiatric illness, an insurance contract providing 120 days of care per admission would probably provide complete coverage of well over 50 per cent of all psychiatric cases, including those in general hospitals, but would cover less than 10 per cent of all days of psychiatric care.

A revolution is occurring in the diagnosis and treatment of mental illness. It may be that in the future the long stays for mental patients, along with the huge state mental hospitals providing dominantly custodial care, will no longer exist. It may be. But here and now a dominant feature of mental hospital care is the long stay.

The great majority of all days of hospital care for mental illness is provided in the state mental hospitals. Here the stays are long indeed. The experience in New York State is probably fairly typical of that elsewhere. Of all the patients resident in New York State's civil mental hospitals, as of March 31, 1956, 22 per cent had been in the hospital 10-19 years and 24 per cent over 20 years! Table 4 shows the length of stay since admission of discharged patients, including those dying, during a recent year. Twenty-five per cent had a stay of less than two months, but 21 per cent had a stay of more than two years.

Another factor in the situation is that a large proportion of admissions to state mental hospitals are persons of advanced age. In New York State, during the year ending March 31, 1956, 32 per cent of the admissions to the state civil mental hospitals were persons 65 years of age and over, most of them diagnosed as senile or with cerebral arteriosclerosis.

It is doubtful that private insurance or prepayment will ever be able to provide effective coverage of all hospital care for mental illness. One may doubt that the private plans will ever be willing to write contracts providing three or five or ten years of hospital care or that they will be able to enroll most of the population, including the aged, from whom psychiatric hospital patients are preponderantly drawn. Further, in order for private insurance to cover fully all mental hospital care would involve, on the basis of present practices and costs in the provision of such care, an increase in the costs of hospital insurance by some 20 per cent, i.e., the total maintenance expense of all nonfederal psychiatric hospitals is about 20 per cent of the total maintenance expense of all nonfederal short- and long-term general hospitals.

The Feasibility of Limited Coverage of Mental Hospitalization

While one may doubt that private insurance can provide full coverage of the cost of mental hospital care, it

Table 4—Discharged Patients (Including Deceased Patients) from New York State Civil Mental Hospitals, by Length of Stay Since Admission, Year Ending March 31, 1956

Length of Stay	Number of Discharged Patients (Including Deaths)	Per cent
Total	19,133	100.0
Less than one month	771	4.0
1– 2 months	4,089	21.4
3– 5 months	3,715	19.4
6– 8 months	2,060	10.8
9–11 months	1,147	6.0
1 year	2,236	11.7
2 years	1,086	5.7
3 years	728	3.8
4 years	477	2.5
5– 9 years	1,130	5.9
10–19 years	797	4.2
20 years and over	897	4.7

Source: "1956 Annual Report," State of New York Department of Mental Hygiene, pp. 91, 93. (Data from Tables 53 and 56 combined.)

nevertheless seems quite feasible for Blue Cross and other private hospital insurance to provide a limited coverage of mental hospital care. By limited is meant for the same number of days as other conditions or for, say, 60 days, whichever is less. Such insurance coverage would provide reasonably full coverage of psychiatric cases cared for in general hospitals and in private mental hospitals and would be highly beneficial for patients, hospitals, and the medical profession.

The costs of such limited coverage are already assumed in good part by commercial insurance and by some Blue Cross plans and could be assumed by the remaining Blue Cross plans without too much difficulty. The costs to a Blue Cross plan of adding this coverage would not be more than 2 to 5 per cent of present benefit expenditures. This can be shown from the experience of a number of Blue Cross plans that are providing limited coverage of mental illness.

The Delaware Blue Cross under its standard program provides 30 days of full benefits plus 30 additional days of partial benefits. These benefits are the same for general and mental conditions and are available alike in general and mental hospitals. Mental illness cases comprised, in 1957, 1.2 per cent of all hospital admissions, and the days for such cases comprised 4.2 per cent of the total days for all types of cases. Total costs for mental illness cases were 1.8 per cent of the total costs. The annual admission rate for mental illness cases was 1.5 per 1,000 participants and the utilization rate, 39 days per 1,000 participants. Average length of stay for mental illness cases was 25.9 days as against 7.6 days for all cases.

The Iowa Blue Cross plan has a contract which provides 70 days' care for general conditions and 30 days for nervous and mental conditions—these latter benefits being available in any hospital. Admissions for mental illnesses* constitute 1.85 per cent of all admissions; and days (up to 30) for such cases amount to 3.1 per cent of total days; costs for such cases amount to 2.45 per cent of total costs.

The Blue Cross plan of Rhode Island, prior to July 1, 1958, had a basic contract which provided 75 days per admission in general illness, and 45 days, during the life of the contract, for mental illness in any hospital.† Under this contract, in 1957, mental cases were 1.13 per cent of all cases and mental days were 2.72 per cent of all days. The admission rate for mental cases was 2.1 per 1,000 participants and the utilization rate, 40.0 days per 1,000 participants per year. Average number of days paid for per mental illness case was 19 days.

The Cleveland Blue Cross plan, which provides 70 or 120 days of care under its major contracts, covers mental cases in all nongovernment hospitals. It reports that its costs for all such cases are about 1 per cent of total claim costs. The average length of stay for psychiatric patients is about 30 days.

The Texas Blue Cross plan provides the same benefits for mental and nervous conditions as for all other types of illness, and benefits for mental and nervous conditions are available in all types of hospitals, including the state mental hospitals. In 1957, admissions for mental illness, including alcoholism, constituted 1.5 per cent of total admissions, and days paid for these cases constituted 5.1 per cent of total days. The admission rate for mental cases was 2.5 per 1,000 participants, and the utilization rate was 45 days per 1,000 participants. Average length of stay for

* Psychosis, psychoneurotic disorders, disorders of character, behavior and intelligence, and alcoholism.

† This contract has been superseded by one which provides full coverage of mental illness in all general hospitals and 45 days during life for mental illness in other hospitals.

mental cases was 17.5 days. Total charges for mental cases constituted 2.9 per cent of total charges for all cases.

The writer has made a rough calculation for New York State of what the costs would be for hospitalized mental cases, if insurance covered the first 60 days of each hospital stay for mental illness, and if 100 per cent of the population were covered by insurance. The admissions to: (a) state civil mental hospitals; (b) psychiatric units of general hospitals; (c) licensed private mental hospitals; and (d) the New York City public hospitals (which have more mental admissions than any of the other groups of hospitals) now total 67,600 per year or 3.4 per cent of total admissions to all nonfederal general short-term hospitals in the state. The estimated number of days of care which would be paid for these cases (counting no more than 60 per case) would be 2,259,230 or 11.5 per cent of total days of care provided in all nonfederal general short-term hospitals in the state. The estimated total costs which would be incurred for these mental cases would be $28,680,000 or 5.2 per cent of the $547,000,000 expended during 1957 for maintenance of all nonfederal general short-term hospitals in the state.

These data clearly seem to indicate that the cost to insurance programs of providing coverage for up to, say, 60 days for all mental cases should not be more than about 5 per cent of present premiums. This is a cost which could readily be assumed by Blue Cross in due course and insurance commissioners probably would quite readily approve Blue Cross rate increases for this purpose.

The Financing of Prolonged Hospital Care for Mental Illness

The great preponderance of all long-term hospital care for mental illness is provided by the state mental hospitals. These hospitals generally have to accept all patients who come to them and endeavor to recover from the patient or his legally liable relative as much of the cost of care as possible. Ten or 15 years ago the hospitals obtained very little reimbursement from or on behalf of patients. During the past ten years, however, with the development and expansion of the Federal Social Security Program, private pension and permanent disability programs, and hospital and medical insurance, increasing attention has been given to obtaining payment from or on behalf of patients. Today, state mental hospitals, as a whole, are obtaining reimbursement from patients to the extent of about 10 per cent of the total expenditures for maintenance of these hospitals.[4] The proportion varies widely from state to state.

The largest single source of patient revenue for the state mental hospitals is said to be the Federal Old Age, Survivor and Disability Insurance Program, in that patients receiving old age or permanent disability benefits assign to the hospital some or all of their monthly benefit, or, the patient being mentally incompetent, payment is made by the OASDI Program direct to the institution.

Many of the state hospital systems, in effect, vary their charges with the ability to pay of the patient. Hospital insurance increases the patient's financial ability. A person who would be charged little or nothing if he had no insurance is charged the full cost of his care to the extent that his insurance will cover it. Thus some of the state systems are doing that which when done by private physicians is considered reprehensible, i.e., increasing the charge to the patient just because he has insurance. Perhaps in their situation the policy is defensible

Nevertheless, despite the reimbursement obtained from a minority of pa-

tients, the state mental hospitals are primarily public charitable institutions. The vast majority of patients pay little or nothing. All patients are subjected to a means test, and the great majority of patients receive care as objects of governmental charity. In the general hospital field these arrangements, thanks in part to the growth of hospital insurance, have now largely gone into the discard, to the great benefit of all concerned.*

It goes, almost without saying, that the great majority of the population is quite unable to pay out of current income or past savings the cost of long continued mental hospital care, even when this care is provided at the low per diem costs of the state mental hospitals.† Care for a year in New York's civil mental hospitals would cost $1,838 ($7 a day for 60 days and $4.65 a day for all subsequent days), and this cost, in the absence of insurance, is clearly beyond the financial reach of all except a few.

How, then, may people finance long-term hospital care for mental illness in such a way that this care can be readily obtained when needed, that its cost will not be a burden, and people can obtain it for themselves or their relatives on an independent, self-respecting basis and not as recipients of public charity? It is suggested that one way would be for the state governments to take the dollar sign off of prolonged care in the state mental institutions, i.e., to discontinue efforts to collect anything for this care and instead to provide it as a free public service available alike to all, rich and poor, like public education.

Such a form of financing of long-term mental hospital care might be viewed, if one wishes, as a form of public mental hospital insurance, wherein the people of the state contribute through general taxes and in which benefits are made available as needed to the relatively small number of persons who happen to require long-term mental hospital care.

Whether it is financially possible for the states to do this with their present financial resources or the resources potentially available to them, will not be gone into here. The greatest need of the state mental hospitals is increased funds, so that the quality of care can be elevated and brought closer to accepted standards of adequacy. This being so, it is questionable whether the states should dispense with a source of income that appears to be of growing importance.

Nevertheless, it would appear that solution of the problem of protection against the cost of hospital care for mental illness requires action by both government and private insurance plans. Historically, the field has been one in which governmental action and governmental financing of care have been paramount. Now private agencies and private insurance are playing an increasing role. It would appear that some demarcation of areas of jurisdiction and responsibility is required. One such demarcation would be for private insurance plans to assume responsibility for paying for care of mental cases in gen-

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* The task of determining how much, if anything, a legally responsible relation should pay for care of a patient in a state hospital is often a most difficult one—and one in which different answers might be given in the same case depending on the current mood or frame of mind of the person making the decision. Take the case of a man, aged 68, who has become a patient in a state hospital. He is entitled to receive from OASDI a monthly benefit of $100. His wife, aged 66, is the legally responsible relative. She receives a wife's OASDI benefit of $50 a month, has an owned home, earns a little from odd work, and has a small income from her husband's past savings and investments. How much does the wife need to live on, what part of the patient's OASDI monthly benefit of $100 shall be retained by the wife, what part used to give the patient some pocket money, and what part paid to the hospital for care?

† Average per diem costs for all state hospitals average $3.65 for the country as a whole, ranging from a high of $5.46 in Kansas to a low of $1.90 in Tennessee.

eral hospitals on the same basis and for the same duration as for all other cases, and to pay private and public mental hospitals for the first 60 or 90 days of care, and for government to provide care in the public mental hospitals after the first 60 or 90 days as a free public service.

In any case the development of insurance is raising problems for the state mental hospitals which eventually they will have to face. Over 13,000,000 persons are covered by major medical policies issued by insurance companies. In many cases these policies provide indemnity allowances against the costs of short- and long-term hospitalization for mental illness. Blue Cross plans in increasing measure are beginning to issue extended benefit contracts, some of which pay for care in public mental hospitals at least for a period. To the extent that public mental hospitals reach out to obtain reimbursement from patients with health insurance coverage they will be under some pressure to obtain some payment from those without insurance. Eventually these hospitals will need to define their nature and role more definitely. Are they public institutions providing charity care, a free public service, or a service that is paid for by patients?

Essentially the question of public policy to be decided is whether it is wise for the public as subscribers to private health insurance to take over a financial burden which is now borne by the public as taxpayers. The question or problem is not a simple one. It involves the ability of private insurance to assume this cost burden, the question of whether there should be separate systems of financing hospital care for mental and for general illness, and what the impact of the decision will be upon adequate financing of state mental hospitals and improvement of the quality of care provided to patients.

Summary

Health insurance coverage of hospitalized mental illness is desirable. Commercial insurance and some Blue Cross plans are providing full or reasonably good coverage of hospital care for mental illness. Other Blue Cross plans could provide such coverage for up to, say, 60 days for not more than 5 per cent of present subscription costs.

One difference in hospital care for mental and general illness is the long stay of some mental hospital cases. One may doubt the ability of private insurance successfuly to cover long-term mental hospital care. Accordingly, some demarcation of public and private responsibility in this area seems desirable. One solution would be for private insurance to provide full coverage of mental cases in general hospitals and coverage for up to 60 or 90 days in private and public mental hospitals and for government to provide long-term care, i.e., after 60 or 90 days, in the state public mental hospitals as a free public service.

However, there are many factors to be considered, and this may not be the best solution. At any rate, the nature and dimensions of the problem to be faced have been delineated to some extent.

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Journal of Public Health

EDITORIALS

Needed Research on Medical Care for Public Assistance Recipients

THE RAPID DEVELOPMENT in recent years of medical care programs for recipients of public assistance has brought in its train a recognition that this field requires basic study. Evaluation and appraisal of such programs have barely started, and much in the literature that purports to do so is essentially descriptive, with emphasis on administrative procedures and cost data. Only very few studies are concerned with research that collects basic data for the exploration of meaningful questions, questions that arise out of a recognition of the existence and interrelation of key problems.

In part, this situation is understandable. Expansion of services in a rapidly growing field often leads to their incorporation within existing administrative structures and patterns. Furthermore, public assistance by its very nature is concerned with the expenditure of public funds and enmeshed in varying and often opposed philosophies. Consequently, attention to administrative matters, particularly involving costs, took precedence over the collection of basic data. However, as new programs appear and earlier ones expand their services, there is a need for effective program evaluation and program planning in terms of reliable and meaningful knowledge.

For this reason, the Medical Assistance Research Project of the American Public Welfare Association is to be welcomed. Developed and sponsored by the association, financial support is being provided by the Public Health Service and the research is being carried out by the Bureau of Public Health Economies of the University of Michigan. The initial publication resulting from the work of the project entitled "Public Assistance Medical Care"[1] is a useful tool and will be of interest and helpful to agency staffs, schools of social work, schools of public health, as well as many other professional groups concerned with medical assistance programs.

The initial report of the project consists of two parts: one is a comprehensive annotated bibliography which provides a handy reference tool to anyone working in this field; the other is a conceptual framework for the research needed in public assistance medical care.

The sphere of research is considered as comprising three major areas. Although interrelated, each has a different focus and emphasis. The first is concerned with the object of the medical assistance program, the recipient, who has actually received little attention. The second involves the organizing and administering of these programs. Emphasis is being given to the study of utilization patterns because of its fundamental importance to many other studies. The third area of research is the relation of welfare medical care to the community. How it can best fit into the total medical care structure of a community is a most important question. Furthermore, what is the impact of welfare medical care on the total health picture of a community?

The last point is of significance in still another connection. If medical care provided through public assistance is a part of the total field of medical care, it may be that studies on other aspects of medical care, such as prepayment, may illuminate problems of medical assistance. In any event, the initial effort of the APWA Project promises well for the future, and we look forward with anticipation to the results of its further endeavors.

1. Axelrod, S. J. Public Assistance Medical Care: Areas of Needed Research and an Annotated Bibliography. Chicago, Ill.: American Public Welfare Association, 1959.

A Public Health Perspective on Strontium-90

IN ENDEAVORING to answer inquiries about radiation, radioactive materials, fallout, and related matters, health departments have been faced with the difficult problem of summarizing the available factual information and of developing a sound, unemotional perspective on these questions. This difficulty exists, of course, because our knowledge of this field and its effects is still quite limited.

Recently, the New York City Health Department took a useful step by issuing a statement on Strontium-90.[1] New York City has adopted comprehensive legislation aimed at protecting the public against radiologic hazards other than fallout and this legislation is enforced by the Office of Radiation Control of the Department of Health.

Fallout, its products, and its consequences have raised numerous questions in the public mind. Because of its resemblance to radium and the further fact that it settles in bones where it persists, many persons are deeply concerned about the effect of strontium on the growing bones of children. The statement issued by the New York City Health Department, and signed by Dr. Leona Baumgartner, endeavors to put the problem of Sr-90 in perspective, while admitting frankly that "Public health scientists can reach only tentative conclusions because our knowledge of this new element and its effects is still quite limited."

Because of the significance of the problem, we believe that this statement would be of interest to public health personnel in other parts of the country. This editorial deals with several points as covered by that statement.

"Sr-90 is a radioactive element which does not exist in nature; it is created when an atom or hydrogen bomb is exploded. It is also created when fission occurs in fission operated power plants. Because Sr-90 is radioactive we conclude that it can be harmful to living tissue but we do not yet know if it is actually harmful and if it is, what quantities will cause harm to humans.

"While bomb explosions scatter Sr-90 in such manner as to be beyond subsequent control, the Sr-90 created in atomic plants is controllable. But managing the safe storage and disposal of

atomic plant Sr-90 by-products is by no means a simple problem; however, it is an entirely different problem from Sr-90 created by bombs.

"Whenever a nuclear bomb is exploded Sr-90 is carried into the upper atmosphere and falls to earth over a period of many years. It is spread world-wide; it is believed that no area of the earth is wholly free of Sr-90 fallout.

"When Sr-90 settles to earth, it falls on soil, water and vegetation and some of it is absorbed chemically through the roots of plants to become part of both human and animal food. Sr-90 is chemically similar to calcium-like character when dairy cattle eat contaminated food, Sr-90 passes into milk and is thus passed on to humans. Lesser amounts occur in fruits and vegetables.

"Again because of its calcium-like character, it goes to and settles in the bones where it persists. Since its radioactive properties are much like those of radium and since radium introduced into bone can cause bone tumors, it is felt that Sr-90 may be capable of causing bone tumors. However, we have not had sufficient experience with Sr-90 to know whether this is an actual fact, in the quantities which now exist in the environment. . . .

"Those experts on nuclear science who would reassure the public point to the fact that human bodies have always contained relatively large quantities of radioactive potassium and smaller quantities of radium taken into the diet from natural sources.

"At many research centers, animal experiments are being conducted to determine the effects of Sr-90. It has been possible to produce bone tumors in animals by feeding them large doses of Sr-90.

"It is estimated that at present the Sr-90 in bones adds under five per cent radiation dose to that already received by the average American from natural sources. It is also known that in some parts of the United States residents are subjected to more than twice the radiation exposure from natural sources as are residents in this part of the country. To some experts this would appear to indicate that the additional amount added by the presence of Sr-90 is relatively unimportant as a health consideration.

"In all consideration of the Sr-90 problem it must be remembered that not all Sr-90 created by bomb blasts has yet fallen to earth. Even if not one more bomb were ever exploded, there would still be Sr-90 fallout from explosions already made. One estimate is that Sr-90 fallout from bomb tests already made will build up, reach a maximum about 1970 and then slowly decline for one or two generations.

"This being true, outlawing bomb tests will not give a complete answer; a ban on tests will prevent further addition to a potential or an already exsting hazard.

"If it is determined that Sr-90 constitutes a health hazard, there are two things that have been suggested to reduce that hazard. One is to attempt to remove the material from foods which contain significant concentrations of Sr-90. The second is to add additional calcium to the diet in order to dilute whatever strontium is being taken into the human system. Both possibilities are being studied.

"Several laboratories have reported success in removing Sr-90 from milk by chemical means. The milk is passed over a form of resin in which the Sr-90 concentrates. This process has so far been carried on only in small-scale laboratory experiments and it is believed that in large-scale operation it would be quite expensive. It is also believed that during the process, a small amount of the resin enters the milk itself.

"This resin, however, may be harmful and if it is, use of this process would mean removing one dangerous substance

only to replace it with a new one.

"An investigator at the University of Chicago who studied the addition of calcium to the diet for the purpose of diluting any Sr-90 absorbed has reported that using calicum on animals does not appreciably affect the concentration of Sr-90.

"Further, it has been suggested by some medical scientists that the addition of excessive amounts of calcium might increase the danger of arteriosclerosis and kidney stones. Here again removing one danger may create a new one. Research on adding calcium is still being carried forward.

"In conclusion, Sr-90, in the concentrations now found in milk, has not been shown to be harmful to either animals or humans. It would appear at present that the added radiation exposure of human bones is quite small compared to bone irradiation that has always been present from natural radioactive materials in the human diet and from other external sources of radiation. Of the two possible steps that could be taken to reduce Sr-90 in the diet, considerable additional research is necessary before either could be used."

1. "Toward a Public Health Perspective on Strontium-90," a statement issued by the Department of Health of the City of New York, April 25, 1960.

A Look at Ourselves—and a Few Thoughts

SOON AFTER the Committee on Affiliated Societies and Regional Branches came into being, it decided to take a look at the members of the Association and also at those members of Affiliated Societies who do not belong to the national group. The findings on the characteristics and attitudes of these public health workers are presented in the Report of an Inquiry which appears on pages 1206-1216 in this issue of the Journal.

We not only call your attention to this report, we urge you to study it and to reflect on its findings. Clearly there are lacks and gaps in Association membership, and this report points to some of the factors—age, economic situations, relative newness in public health, as well as others. At the same time, there is a better basis of knowledge for the planning of action to bring nonmembers into closer contact with the Association. The Committee on Affiliated Societies and Regional Branches would welcome ideas and suggestions for overcoming some of the difficulties revealed by the current report. The chairman of the committee is J. W. R. Norton, M.D., State Health Officer, Raleigh, N. C.

1960 Is the Golden Anniversary Volume
of the American Journal of Public Health

Journal readers are invited to study the leading questions posed in the following presentation. The faculty of the University of California School of Public Health would regard any reader's written reaction to these questions as welcome contributions to the valuable fund of answers which the school is accumulating.

ACADEMIC PREPARATION IN PUBLIC HEALTH

The Questions Which Persist

IN CONNECTION with a study aimed at the reorganization of its graduate curriculum, the Faculty of the School of Public Health of the University of California has posed several questions about the present and future of public health in the United States. What these questions may lack in originality they make up for in persistence; and their answers, or at least some commitment as to possible answers, are felt to be important ingredients in the masonry of curriculum building.

A series of letters was sent to several public health people in the country, both in and out of academic circles, asking for reactions to these questions. While several groups of questions were concerned specifically with academic matters, three of them were of sufficient general interest that their publication in the American Journal of Public Health was suggested as a means of educing a more general reaction. Listed below are these three groups of questions with some general stage-setting comment before each.

I. It can be logically argued that before a school of public health can devise a curriculum to help the field reach its destination, it must first come to grips with the nature of that destination. However tentative and uncertain such speculation might be, a faculty must come to some general conclusions concerning these matters before its curriculum can have any real meaning. These conclusions must be at least specific enough to point in the right direction and general enough to permit choice of alternate routes around obstacles along the path. Put another way, these conclusions are analogous to road signs which, though less helpful than a road map, are nonetheless better than nothing. The questions we asked about this matter were:

A. In the years ahead, what do you believe will be the main emphases of the field of public health with respect to: administrative organization; research; service programs?

B. What kinds of special training (or skills, if you will) will be needed in the field to bring about the emphases you envision?

C. Will administrative leadership in the field of public health be inexorably wedded to medicine in the years ahead, or might other kinds of training appropriately qualify one for such positions? If the latter, what kinds of training would be appropriate?

II. The age of specialization has arrived in public health as in other areas; the talents and training needed to carry out its functions are very wide, and are becoming wider. But by its very nature specialization brings with it a devilish problem; and by definition the more specialized we become the more devilish —and important—becomes the problem: Who is to keep the entire field in his purview and blend it into a sensible

whole? Who is to have enough understanding of all the specialties involved that he can relate them intelligently to one another? In short, is there need for a "generalist" in public health, and if so, how is he to be produced? The questions we asked about this matter were:

A. Do you agree that this generalist-specialist dichotomy is a valid one, and if so how do you think a school of public health can best train the generalist?
B. Would such training be in addition to or in place of specialty training?
C. What kind of student could benefit from it most, hence who should be accepted for it?

III. Perhaps because of the enormous expansion in medical and other health research within the past few years, the field of public health is growing in research-consciousness; and the amount of research being undertaken by departments of public health, especially the larger ones, is increasing rapidly. As a result, these agencies are feeling an increasing need for a greater research ability in their professional-level people. The agency people with whom we have talked are none too happy with the quality of research of which graduates of schools of public health are capable. This, of course, poses an important problem for schools of public health: the expanding dimension of research needs in the field suggest new dimensions of research teaching. The questions we asked of our correspondents were:

A. What level of research ability should M.P.H. students possess for the type of jobs they fill?
B. In view of the great diversity of students and the amount of time required to give them the common instruction necessary for an identity with the field, is it possible to give the instruction required for sophisticated research ability?

March Supplement of the Journal

National Heart Institute has indicated its willingness to share its supply of copies of the AJPH March Supplement on heart disease with persons in need of it. Even with a printing "overrun" of "Prevention and Control of Heart Disease," its popularity has outstripped supplies available through APHA headquarters. This supplement, Part II of the March Journal, contains the five papers, discussions and the summary of the Association Symposium on this topic at the 87th Annual Meeting of APHA, October 23, 1959. National Heart Institute, NIH, is at Bethesda 14, Md.

ASSOCIATION NEWS

APHA ANNUAL MEETINGS

1960—October 31-November 4—San Francisco, Calif.
1961—November 13-November 17—Detroit, Mich.

White House Conference on Youth

The American Public Health Association sent 14 delegates to the Golden Anniversary White House Conference on Children and Youth, held March 27-April 2. Several have written reviews of the meetings they chose to attend out of the conference's three Theme Assemblies, 18 Forums based on these themes, and 210 Workgroups related to Forum topics.

One of the delegates, attending a White House Conference for the third time, summarized her impressions and placed the conference in an historical perspective. The following are excerpts:

"This was the largest conference to date—more than 7,000 delegates, nearly 3,000 of whom were fully-participating young people in contrast to 500 at the 1950 conference. There were 500 observer-participants from 57 other countries. Last time the foreigners were observers, and probably by 1970 they, too, will be full participants.

". . . This conference had a broader, more 'outward' focus than previous Conferences. The major emphasis seemed to be the impact on children of the world around them—economic, technologic, social and cultural developments. There was high consciousness of the rapidity with which change is taking place. The influence on children of life in suburbia, of increasing leisure, changing values, urban growth, disintegration of the family, and the struggle for civil liberties, dominated the discussions. Social and political scientists, economists and labor leaders had prominent parts in the Conference, along with social and health workers, educators and government officials. This breadth of focus is in contrast to that of the 1950 conference, at which the dominant theme was healthy personality development in the individual (a reflection) of the (then) growing interest in depth psychology, mental health, and child development.

"The first White House Conference, called in 1909 by President Theodore Roosevelt, was concerned principally with dependent children. The second conference, ten years later, was influenced by an up-surge of interest about the health and welfare of children as a result of World War I. But it was not until the 1930 conference, called by President Hoover, that health became the dominant theme. . . . This conference contributed greatly to the advancement of the field of pediatrics. The group of pediatricians who played an important part in the planning of this 1930 conference also had an important role in the founding and early development of the American Academy of Pediatrics. The Children's Charter produced by this conference . . . had widespread influence on the development of child health. Among the most important results of the first two conferences were the establishment of the Children's Bureau, of the Child Welfare League of America, and the trend away from the institutionalization of children in this country. The Shepard-Towner Act (1921, the first grant-in-aid program in the health field) was an outcome of the Second Conference. . . .

"Time must elapse before it will be possible to appraise the value of this last conference . . . The bringing together of so many people with a primary concern for children provided a tremendous speed-up in the exchange of ideas, stimulated leaders of voluntary and government agencies at local, state and national levels, and cannot help but contribute significantly to the welfare of children and youth in this country. The value of its 1,600 recommendations lies in the growth of ideas which took place in the participants rather than in the recommendations themselves. Even the most cynical would have to place value on the

partnership brought about in Conference planning and follow-up between federal agencies concerned with children and among State and local committees and national organizations.

"Those of us who were from the field of public health might paraphrase a comment made about a previous conference by saying that as public health people we learned and re-learned that, as important as the field of health is to children, we are not the sun nor the moon in the heavens but just one of the stars. And this conference experience impresses us again that public health in all of its activities needs to look outward at the effects on people of our rapidly changing social environment." (Jessie M. Bierman, M.D.)

Space permits less than complete quotation from the summaries written by other APHA delegates. With apologies to them, selective excerpts only are presented. Although references to work groups are omitted, each delegate participated in this kind of program activity. The conference recommendations came from the Workgroups.

Theme Assemblies

"Speeches in the theme assemblies (emphasized) the effect of the affluent society in which we live on our children and youth. Some speakers dealt directly with this . . . others discussed various manifestations of the affluent society, such as overindulgence in television. . . . Very little was heard about the problems, health or otherwise, of those economically deprived segments of the population still present in our otherwise affluent society.

"The contrast in philosophical emphasis and presentation of Theme Assembly speakers was interesting. Abraham Heschel, professor of Jewish ethics (Jewish Theological Seminary of America), gave a powerful address on the 'spirit of the age,' the social climate which we adults have created through our emphasis on the material instead of higher values. . . . Talcott Parsons, professor of sociology, Harvard University, on the other hand (gave evidence that) there has been no deep-seated change in the sense of values in the last generation." (Goldie B. Corneliuson, M.D.)

Forums I-IX

"Forums I through IX were concerned with 'The World Around the Young.' Forum I was specifically centered on the environment, that is, social conditions and physical facilities which affect the development of the young, and was divided according to physical location into three areas—the urban, the suburban and rural environments. . . . There seemed to be general agreement that the healthy and happy development of youth is definitely affected favorably or adversely by the environment, not only the physical but the emotional and social also. . . . America is rapidly becoming highly urbanized and suburbanized. . . . During the next ten to twenty years the vast majority of American youth will grow up in either urban areas or in suburban areas which will become urbanized rapidly. . . . Failure of governmental bodies to save sufficient open space, held as public land until needed, was pointed out as a major cause for today's inadequate school sites, recreational areas, and appropriate location of governmental buildings. . . . Children forced to grow up in substandard housing and neighborhoods probably are more damaged emotionally than physically.

". . . . Recommendations were for (1) . . . the establishment of some sort of federal department or division which would give assistance, direction and control to sections of the country . . . where huge urbanized communities are developing and impinging upon one another; (2) the development at state level of personnel and legislation to provide the same sort of assistance and control to counties and cities as needed; and (3) the immediate furtherance at local levels of the establishments of new, or strength-

ening of pre-existing, social and physical planning groups, with recognized authority, made up of representatives from both official and voluntary agencies, and including youth (and neighborhood) participation." (Alan Foord, M.D.)

"Forum II discussion was on mobility of both migrants and newcomers. . . . Each of these has not only the health problems of the rest of the population but special ones of their own. Both have a considerable problem of relating to the rest of the community. . . . Careful attention (should) be given to welcoming and orienting newcomers. . . . Newcomers might have a 'newcomers council' to make their needs known, and also to assess the skills and knowledge they possess that might be used in strengthening the community. Most of all, the group stressed the need to remove any residence requirements or other restrictions which prevent newcomers from obtaining the necessary services." (Thomas R. Hood, M.D.)

"The following stand out in the kaleidoscopic parade of speeches and events that took place in Forum V—'Opportunity':

"The profundity and rapidity of social change was repeatedly stressed as the main characteristic of our world today. . . . Juvenile delinquency is ten times more frequent among school drop-outs and it was stressed that a satisfying program must be provided to hold students to combat this tendency. . . . The best protection against juvenile delinquency is a good home for each child with plenty of love. . . . Probably the outstanding characteristic of the discussions was the ability of the group members to debate crucial issues with good will. . . . One student introduced himself as a beatnik who was told to wear a tie while attending. Our group recorder commented later that although he had characterized himself as a beatnik he was the most optimistic delegate in the group." (John H. Shaw, Ed.D.)

Forums X-XVIII

"In Forums X-XVIII—'The Young in the World'—our thinking was focused more sharply on problems of children in specific age groups. In Forum X, ('Moving Toward Maturity—Birth to Puberty') Amos Christie, M.D., . . . said that educators and health personnel must work closer together in dealing with the whole child . . .; we should make partners of parents in our desire to improve school conditions and to solve health problems of children and we should spend more time on why a correction was not made. . . . Concentrate on children who are tardy and absent. In the health field this 10 per cent of the children in class need 99 per cent of our time. He stressed . . . religion in giving strength for future security (and the importance of preventing) emotional problems in the adult by proper measures in childhood.

". . . Recommendations included: a more extensive program of education for parenthood; . . . child guidance clinic services; fluoridation of community drinking water supplies; and the provision of a healthful environment for children by the organization of a local health department with qualified staff." (Goldie B. Corneliuson, M.D.)

"Forum XIV—'The Young as Citizens' . . . recognized the need to impress young people with their responsibilities as World Citizens by preparing them for intelligent representation of their country through more intense study of peoples, countries, languages, geography and history, and through broader participation in programs of organizations with international affiliations.

"(Recommendations:) that voluntary community services in which young people are involved should . . . develop a sense of community responsibility . . . provide opportunities for career investigation and experiences in group planning and problem solving with adults. Efforts should be directed toward involv-

ing minority groups, migrant youth, both extremes of the economic scale and handicapped children as community volunteers." (Polly Ayers, D.D.S.)

"In Forum XVI on 'The Young with Physical Handicaps,' the major part of the discussion and most of the recommendations were related to the quantity and quality of rehabilitation services and education. . . . One recommendation of special interest was that the Children's Bureau be authorized to make grants for research directly to institutions or individuals in line with current practice in the Public Health Service and Federal Office of Vocational Rehabilitation. . . . The greatest amount of heat was generated (on) recommendations touching on the responsibilities of the schools in providing services for handicapped children. The discussion appeared to lead to general agreement that the schools have no responsibility for, and should keep out of any attempt to provide, definitive diagnosis and development of a plan of treatment in relation to handicapping conditions." (Edward R. Schlesinger, M.D.)

General Impressions

"From the expressions of youths participating in meetings and from my own conversation with some of them it seemed clear that they derived far more from the Conference than their adult colleagues. I felt very much the jaundiced old man who has been to far too many meetings for his own good when I heard them speak glowingly of the opportunity the Conference had given them of making wider contacts, thankfully to the 'adults' who had welcomed their participation, and hopefully about the follow-through of Conference recommendations. They were articulate, keen, sometimes naive but often insightful and always self-confident. I was impressed not only by them but also by the idea of mixing youth and age (or let's say middle-age) in discussion groups tackling community problems. I suppose the Conference youth contingent was a highly selected sample but it was a heartening one.

"An international exhibition of painting by mentally retarded individuals (young and old) almost all of whom were in institutions was impressive. All of these productions were interesting and a number of them could be hung appropriately in any 57th Street gallery." (Alfred Yankauer, M.D.)

Selected comments from youth overheard by Catherine M. Casey and Martha L. Clifford, M.D., at large:

"It seems that there are more agencies than problems. The adults better coordinate them.

"Adults will plan and give money, often lots of it, but they will not give of themselves. I was the only person in my town to volunteer time on Saturday morning to a day class for blind children. Through this experience I first became interested in being a delegate to the White House Conference."

In an editorial entitled "Ten Year Itch," the Washington Post commented on the conference participants' concern that they might not produce "anything more than lofty words" by saying:

> "The very degree of the conferees' frustration may be the real gauge of the success of the conference. The delegates ought to return home more disturbed than when they arrived about the inadequacies in education, in home life, in youth's relationship to the community —more conscious than they were of the Nation's slow progress in solving these problems. We hope, indeed, that they'll go home concerned enough to work harder on these issues in the next 10 years than they have in the last 10."

The American Public Health Association was a member of the Council of National Organizations for the 1960 conference. There were 593 such organizations on the council in 1960, as compared with 464 in 1950. In the report of the Council of National Or-

ganizations entitled "Focus on Children and Youth," the APHA is credited for its interest in the field of medical care for infants, in promoting fundamental attitudes toward accident prevention, on the importance of health instruction in a college curriculum, and in industrial health. The inclusive definition of physically handicapping conditions in the guide on services for physically handicapped children developed by the Program Area Committee on Child Health of the APHA, is quoted in the chapter on physically handicapping conditions in setting the stage for the reports' discussion of this topic.

Conference proceedings are to be published. The conference's Publications Division is at 330 Independence Ave., S.W., Washington 25, D. C.

End of Federal-State Action Group

The Joint Federal-State Action Committee has disbanded and turned its records over to the recently formed Advisory Commission on Intergovernmental Relations.

One of the proposals of the joint committee which Congress approved, was the amendment of Atomic Energy Act to grant states a greater share of responsibility for promoting and regulating the peaceful uses of atomic energy, especially as regards health and safety.

In its final report to the president and the chairman of the Governors' Conference, the committee recommended that the states have more flexibility in the administration of public health programs. Also states should be allowed to transfer up to one-third of any eight categorical grants (for VD control, tuberculosis, cancer and heart disease, general health assistance, mental health, crippled children, and maternal and child health) to other programs in the group. Social Legislation Information Service (No. 56, April 25, 1960) reports that HEW has agreed to propose the suggested changes to Congress next year.

STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER

Principal Changes in the Eleventh Edition

The above caption indicates the new name for Standard Methods for the Examination of Water, Sewage, and Industrial Wastes. With its title change and in an eleventh edition, publication is anticipated for late September, 1960.

Although the volume's general format will be the same, the new edition will be one-fourth again as large as the 10th. Inclusion of material to conform with advances in analytical technics and in water and waste treatment processes account for the expansion in size. Three new parts have been added, making nine parts instead of the six of the tenth edition.

As with past editions, the eleventh will contain simple procedures for control of treatment processes, as well as the more complex tests for special and research investigations. It will also include many recommended changes in specific methods and test procedures.

The preface outlines a new policy for Standard Methods whereby, between editions, methods designated as Tentative can be transferred to Standard by action of the Joint Editorial Board and approval by the sponsoring associations.* New procedures accepted as Tentative or Standard will be published in one or more of the Journals of the three associations. No method can be deleted, or reduced from Standard to Tentative, before publication of a succeeding edition.

The General Introduction discusses the statistical treatment of data. It has also been expanded to provide more information applicable to all analytical procedures.

The designation "ppm" has been deleted for all chemical analyses and replaced by the term "mg per liter."

Part I

"Chemical Analysis of Water" provides many new and improved technics.

Hardness—The use of ion exchange resins in analytical chemistry and in the checking of analyses is discussed at length and provides an entirely new extension of Standard Methods. The EDTA test has been established as a Standard Method for the determination of hardness and for Ca and Mg. The old and familiar soap test has been deleted.

Anionic Surfactants—Two methods are offered on a tentative status for the determinations of anionic surfactants (synthetic detergents).

Fluoride—Three important changes have been made in technics for the determinations of fluorides. The Quick Distillation method has been added with Tentative Status. A new photometric method based on a zirconium SPADNS lake also is included with Tentative designation. The Scott-Sanchis and Magregian-Maier colorimetric methods have been retained as Standard. The Lamar method has been deleted.

Copper—With the deletion of the diethyldithiocarbamate method, the "cuprethol" method is recommended for field and control use. An extraction method based on bathocuproine reagent

* American Water Works Association, Water Pollution Control Federation, and the American Public Health Association.

is presented for those situations where interference is a problem.

Chloride — The mercuric nitrate method using diphenylcarbazonexylene cyanol FF indicator has been upgraded to a standard status while the Volhard method has been transferred to the Wastes Section of the eleventh edition. The classical Mohr Standard method remains.

Sulfate—Two versions of the gravimetric method are described. The accurate method specifies the ignition of the barium sulfate precipitate. An alternate gravimetric method which is suitable for routine applications permits the oven-drying of the barium sulfate precipitate before the final weighing. The turbidimetric method specifies a mixed salt-acid reagent containing glycerin. All of these methods bear a Standard status. The tenth edition's titrimetric method using tetrahydroxyquinone indicator has been deleted.

Taste and Odor—Significant changes have been made in the technics for the detection of Taste and Odor. A 200 ml sample is specified for the threshold odor test and a temperature of 40° C has been established for the cold threshold odor and 60° C for the hot threshold odor.

The terms "filterable" and "non-filterable residue" are substituted for the previous designations "dissolved residue" and "suspended residue."

Part II

"Chemical Analysis of Sewage and Effluents." Numerous changes and additions appear. The more important are summarized below.

Residual Chlorine—The material has been completely rearranged and rewritten. In the iodometric method, the reducing agent may be either phenylarsine oxide or thiosulfate.

Grease—The solvent has been changed to n-hexane and a new adsorption method using alumina to separate the hydrocarbons from the fatty matter of sewage has been added.

Nitrogen Nitrate — The brucine method which seems satisfactory for amounts greater than 1 mg/l has been added.

Part III

"Examination of Industrial Wastes." A new method for the acidity or alkalinity of wastes such as acid mine waters will provide for the titration of a boiling sample with an alkali or base to the phenolphthalein end point.

Cyanide—The tartaric acid distillation procedure in the preliminary treatment of cyanide samples has been omitted.

Metals—

Chromium: The excess permanganate will be removed with azide instead of by boiling with hydrochloric acid. A method for the determination of hexavalent chromium has been added.

Copper: The neo-cuproine method has been substituted for the diethyl dithiocarbamate method previously used.

Manganese: The use of persulfate instead of periodate will be specified for the oxidation of manganese salts to permanganate.

Phenol—A new method for the determination of para-substituted phenols has been added as a tentative method. After use of the Gibbs' reagent as a screening procedure, the para-substituted phenols are removed from the sample by steam distillation and reacted with p-sulfobenzene-diagonium chloride to form a red dye.

Part IV

"Examination of Sludges."

Volatile Acids in Sludge—The tentative control method B has been improved by centrifuging to remove sludge solids before distillation.

Part V (New)

"Radiological Methods." The growing importance of radioactive pollution of water is recognized by the inclusion of tentative procedures for the measurement of radioactivity in water and wastes.

Part VI (New)

"Bio-Assay Methods for the Evaluation of Toxicity of Industrial Wastes," is devoted to methods for bio-assay of wastes particularly as related to toxicity to fish.

Part VII

"Bacteriological Methods." The membrane filter technic has been made an alternate Standard Method for the examination of water under specified restrictions as to the general application of this method to routine examinations. The delayed incubation modification of the membrane filter technic is described as a Tentative Procedure. Tentative methods for the detection and enumeration of enterococci are included for the first time. The Most Probable Number Tables have been increased to include the usual series of volumes and numbers of portions of the sample examined. Confidence limits are included for each of the MPN values that are likely to be found on examination of samples.

Part VIII (New)

"Iron and Sulfur Bacteria." The technics for the detection of "nuisance bacteria" have been transferred to this from Part V. Tentative methods are described and illustrations included to aid in the identification of the organisms.

Part IX

"Microscopical Examinations" will include new and improved illustrations of significant microorganisms with only minor changes in the technical procedures for these important examinations.

Methods and procedures presented in the eleventh edition are based on the best current practices and knowledge in the field of water and waste treatment operations. Where available, the data of the Analytical Reference Service of the Public Health Service have been incorporated in the precision and accuracy statements of the many methods for chemical analysis of water. These data reflect the application and value of tested procedures.

The new edition, like the tenth, has been prepared by, and is the production jointly of, the American Water Works Association, the Water Pollution Control Federation, and the American Public Health Association. The technical matter was prepared under the direction of a Joint Editorial Board consisting of the chairmen of the appropriate Standard Methods Committee of each of the participating societies. The price of the volume will be $10 for general sales and $8 for members of any one of the sponsoring organizations when remittance for the volume is transmitted with the order. Purchasers wishing to take advantage of the special membership price should order through the society of their membership. Other orders should be placed with the American Public Health Association, 1790 Broadway, New York 19, N. Y., publisher and copyright holder.

F. WELLINGTON GILCREAS, Chairman,
Joint Editorial Board

STANDARD METHODS FOR THE EXAMINATION OF DAIRY PRODUCTS

Principal Changes in the Eleventh Edition

The Subcommittee on Standard Methods which prepared the eleventh edition of Standard Methods for the Examination of Dairy Products, to be published in the fall of 1960, is comprised of nine reference committees of three or four members, with each committee responsible for reviewing trends and changes in certain areas and for revision of related chapters. The following summary itemizes the principal changes they have made in the eleventh edition. In addition to review by subcommittee members, all material has been reviewed by members of the APHA Coordinating Committee on Laboratory Methods and by other individuals having an interest in special fields. Upon recommendation of the Coordinating Committee on Laboratory Methods and the Committee on Evaluation and Standards, the Governing Council approved publication of the eleventh edition as an official report of the American Public Health Association. This review has been prepared for the general information of the membership by Dr. Luther A. Black, chairman of the subcommittee.

The general format of the eleventh edition will be identical with that of the tenth, except that the applications and interpretations now collected in Chapter 1 have been incorporated in the respective chapters on analytical procedures. This has resulted in a shorter introductory chapter, which considers basic public health concepts for the sanitary quality of dairy products, inspection, laboratory control, screening tests, and the relative accuracy of methods of measuring sanitary quality. New material includes a discussion of radioactivity in relation to milk, recent applications of split sample tests, and the need for new quality tests for use by either official agencies or industry.

The collection of samples of milk and cream has been discussed in a separate chapter. Special attention has been given to new material on collecting samples from large tanks and vats and en route samples from bulk farm tanks.

Bacteriological Methods

No major changes have been made in the agar plate count procedure. Although previous editions described a test to detect possible toxicity of buffered phosphate dilution water, no test was provided for determining whether distilled water is free from toxic substances. Consequently, a recently developed microbiological test for detection of growth inhibition or stimulation in distilled water will be included in the eleventh edition. By adding small amounts of individual chemicals to separate portions of distilled water and inoculating with selected cultures of microorganisms, it is possible to determine whether the water contains excess amounts of nitrogen, carbon, toxic metals, etc. Theoretical comparisons indicate that the "3-out-of-4" method of averaging bacterial counts is considerably more stringent than the logarithmic average in grading the bacterial quality of milk. Recent studies have shown that the "3-out-of-5" method agrees more closely with logarithmic averages, and this will be included in the eleventh edition.

The direct microscopic count method has been entirely rewritten and will appear in a separate chapter. The polychrome methylene blue stains in the tenth edition will be replaced by the Levowitz-Weber modification of the Newman-Lampert stain. The importance of adequate illumination is emphasized,

and the eleventh edition will stipulate use of a better microscope lamp, preferably a research type, equivalent to at least 100 watts illumination and having a reflector, condensing system and iris diaphragm.

Little change has been made in dye reduction tests which are regrouped in a separate chapter. Although the resazurin "triple-reading" test will be retained, the "one-hour" resazurin reduction test in the tenth edition will not be included in the eleventh. As with the direct microscopic method, areas which have changed to bulk farm tanks and mechanical refrigeration report that reduction tests are less useful than in the past.

Accordingly a chapter on miscellaneous microbiological methods will include several simplified viable count methods suitable for Grade A raw milk for pasteurization. One method consists of transferring with a platinum loop 0.001 ml of milk to an oval tube incubating for 48 hr and counting the resulting colonies. Another is a modified Frost little plate. Systematic studies based on average counts obtained with these two viable count methods, prepared in duplicate from the same milk in comparison with agar plate counts, revealed that results essentially identical with Standard Plate Counts can be obtained by each method.

Although the tests in the tenth edition for detection of antibiotics and other bacterial growth inhibitors in milk are not as simple as desired, no major changes in improved methodology have been brought to the committee's attention. The basic disc assay in the tenth edition of Standard Methods is still the recommended procedure. There will be some slight modifications of this procedure in the eleventh edition—the discs need not be sterile, control lots of spores should be titrated to control optimum concentration and, since positive samples may be less than 1 per cent, much time may be saved by applying the heat treatment and penicillinase test only to samples positive on the initial assay, thus making a second assay necessary only for all positive samples. Incubation suggested is at 35° C until growth becomes apparent or incubated at 32° C for 14 to 24 hr.

The eleventh edition will also provide an optional short incubation procedure, limited to penicillin assay seed agar only, with the spores heat-shocked again at 70° C for 15 min (or 80° C for 10 min) just before pouring plates. Three screening tests will be described: a reverse-phase disc assay, the FDA rapid disc assay, and a triphenyl tetrazolium chloride reduction test.

Specific Bacterial Groups

The material on the coliform group has been rewritten and rearranged in a separate chapter. Since organisms other than coliforms may ferment formate ricinoleate broth to yield gas, this medium has been omitted in the eleventh edition. Provision is made for optional incubation at 32° as well as at 35° C. Although the general experience has been that solid media yield maximum information with the least material and labor, for those preferring a multiple tube (MPN) procedure a new table has been prepared giving Confidence Limits for Most Probable Number estimates. Since differential media are used initially in testing for coliform group organisms in milk, the standard test is more specific than the usual "presumptive" tests. Accordingly, this terminology will not be used in the eleventh edition, but provision is made that any doubtful colonies may be "verified" by inoculating into brilliant green bile broth or violet red bile or desoxycholate agar, or "completed tests" may be made if necessary under conditions which are outlined.

The scattered material in the tenth

edition on thermoduric and thermophilic bacteria has been brought together in a chapter to which has been added new material on psychrophilic bacteria. In addition to psychrophilic plate counts incubated at low temperatures, a "storage quality test" of products at low temperature is also provided for those wishing to use such procedures.

The material on detection of pathogens previously scattered through Standard Methods has been brought together in one chapter, with the methods brought up to date and entirely rewritten and rearranged. New material has been added on staphylococci and streptococci. Since bovine infections with the Rickettsia, Coxiella burnetii apparently occur in all parts of the United States, methods are given for their detection in milk. The capillary tube agglutination test is the method of choice for testing milk specimens and is ideally suited for rapid screening of cow's milk or pooled milk of entire herds.

Specific Dairy Products

Methods for the examination of milk products formerly appearing under ingredients used in frozen dairy foods have been placed in a separate chapter devoted to concentrated milk and cultured products. Inasmuch as dilution blanks prepared with lithium hydroxide have been shown to be toxic, sodium citrate has been substituted wherever milk powders are insoluble in standard diluent. Cultured milk products are now controlled operations in most dairy plants, so that methods and standards have been included for the coliform group and yeasts and molds which are applicable to buttermilk, sour cream, yogurt, and acidophilus products.

Revision of the chapter on microbiological methods for butter has included addition of a proteolytic count and test for coliforms. In the chapter on microbiological methods for cheese, provision has been made for examination of cottage cheese for coliforms and for a membrane filter test for psychrophilic bacteria.

Only minor changes have been made in the chapters on ingredients of ice cream and related products, and on ice cream and related frozen products.

Sanitization Tests

In the chapter on sediment in fluid milk, extensive revisions have been made to include sediment tests of bulk farm tanks and off-the-bottom samples.

Minor changes have been made in the chapter on tests for sanitization of equipment and containers, such as optional use of sodium alginate swabs in place of cotton. Although the membrane filter method has not been found suitable for total and coliform counts of milk, it can be used to advantage in filtering large quantities of sterile waters used to rinse pipelines cleaned in place or other equipment or containers. Accordingly, its use is described in this chapter.

A new chapter has been prepared on tests for the suitability of dairy farm and plant water and air supplies. Water of suitable sanitary quality may still contain small numbers of psychrophilic bacteria which grow under prolonged refrigeration during storage of milk and milk products and may result in off-flavors, odors, or deterioration of the manufactured products with which it comes in intimate contact, as in rinsing butter and cottage cheese. For detection of low numbers of such organisms, a plate count and membrane filter procedure are provided. Since some psychrophiles are very difficult to isolate unless special enrichment procedures are employed, a screening test is included for this purpose.

The use of atmospheric air, water vapor, and other gases in the processing of milk and milk products by direct in-

corporation, as in mixing and indirectly by application to containers and equipment, is becoming increasingly prevalent. Accordingly methods have been included in the eleventh edition for the collection of suitable air samples and for microbiological analyses. The sedimentation test has been retained and the U. S. Public Health Service liquid impinger has been adapted to aerobiological tests. The Andersen aerosol sampler is suggested for use, and other recognized methods as the air centrifuge, slit impinger, and electrostatic precipitator are permitted.

Chemical Methods

In addition to miscellaneous chemical methods formerly included in the tenth edition of Standard Methods, the eleventh edition will contain methods for the radiochemical analysis of milk suitable for use by state and local health departments for surveillance purposes. In the past, cryoscopic determinations of added water in milk have been laborious, time-consuming, and consequently expensive. Recent equipment substituting thermistors instead of thermometers for the freezing point measurements permit use of small samples, temperatures of which are readily kept uniform; thus the reading at freezing remains constant for a comparatively long period. New equipment, complete with refrigeration system, automatic agitation and automatic controls has greatly simplified detection of added water, and appropriate methods for use will be included in the eleventh edition.

The Gerber test for butterfat is generally used throughout the world, except in the United States, where the Babcock method has been standard for many years. The Gerber test has, however, been used officially by several states in this country, as in accuracy it agrees closely with official ether-extraction methods. Accordingly, the Gerber test has been included for milk, cream, and chocolate milk and chocolate drinks. It will also replace the Babcock modifications for fat in frozen dairy foods, but since stabilizers and emulsifiers in ice cream may slightly reduce its accuracy, applications to ice cream will still be regarded as a screening test.

The material on phosphatase methods to determine pasteurization has been reorganized to provide more detailed information on necessary controls for the rapid test as well as clarified directions regarding its applicability to a variety of milk products. The rapid test is generally used as a laboratory procedure and the revised directions are predicated on this usage. Reference is made to modifications that may be made for use as a field procedure. One of the principal difficulties in reading results of phosphatase tests seems to be inadequate illumination. Accordingly the eleventh edition will require that this chemical test be read under proper uniform illumination, for example, a single 14-22 watt daylight-type fluorescent light such as that used in a dental x-ray film viewer.

The last chapter will consist of chemical methods quoted from the ninth edition (1960) of Official Methods of Analysis of the Association of Official Agricultural Chemists, by permission of that association.

Media Appendix

The formulas for all culture media mentioned in the several chapters, and directions for making and using media, have been included in an appendix in which media are listed alphabetically and numbered for appropriate reference.

Publication will be in October, 1960. The length of the volume has increased from 345 to approximately 480 pages. The price is $7.

LUTHER A. BLACK, Ph.D., Chairman

COMMITTEE ON AFFILIATED SOCIETIES AND REGIONAL BRANCHES OF THE AMERICAN PUBLIC HEALTH ASSOCIATION

REPORT OF AN INQUIRY ON MEMBERS AND NONMEMBERS

EARLY IN ITS EXISTENCE as a Standing Committee of the Association, the Committee on Affiliated Societies and Regional Branches concluded that its endeavors would profit if it knew something of the characteristics of the members of the Association and of their attitudes toward it. At the same time, the committee also felt the need for similar facts about members of Affiliated Societies who are not members of the national group. Such information should, it was believed, benefit both the APHA and its affiliates. Hence the committee decided that a mail inquiry should be sent to a sample of APHA members and to a sample of members of Affiliated Societies who do not belong to the APHA.

At the outset, limitation of the inquiry to manageable proportions was considered essential. Moreover, while rosters of APHA members were available for selection of a sample, no uniform registers of state affiliate membership could be expected. Indeed, the variation in membership requirements of the several affiliates indicated that they were not homogeneous in membership. Hence, a good estimate of the characteristics of APHA members could be anticipated, but contrasting data for nonmembers would be impressionistic rather than precise.

It was agreed, also, in order to keep the size of the sample relatively small, that the committee would be satisfied largely with simple distributions, and that little attempt would be made to examine the effect of personal characteristics on various activities or attitudes of respondents.

The Questionnaire and Pretest

Accordingly, two questionnaires were designed: one for APHA members and a suitably modified one for nonmembers. These were given a preliminary test among friends and associates of the committee members. The reactions of these respondents and the problems they encountered in completing the questionnaires were discussed at the committee's meeting in June, 1958, and the questionnaires were amended as indicated. These amended questionnaires were then used in a field trial in one state in order to test again the wording and construction of the questionnaires, to get an idea of the probable response distributions, to test the proposed procedures, and to investigate the number of follow-ups that would be profitable.

At this pretest a single mailing brought a 73 per cent return from APHA members and almost a 50 per cent return from members of the Affiliated Society in the test state. Two follow-ups were mailed, but the second yielded so little that the committee decided only a single follow-up in the major study would be warranted. As a result of the pretest experience, the questionnaire was further modified at the committee's meeting in November, 1958.

In many of the distributions resulting

from the pretest material, specific categories accounted for large proportions of the totals. Therefore, the conclusion was drawn that sampling errors associated with a sample of about 500 would be quite tolerable, and it was agreed to select a 5 per cent sample of the approximately 12,000 APHA members.

The Samples

APHA Members—The APHA roster of members is alphabetically arranged by state, by city within the state, and within a city by surname of member. From this file, a systematic 5 per cent sample was chosen.

Exhibit 1—Questionnaire "A"

Identification

1. Age (check appropriate group)

   20–29____ 50–59____
   30–39____ 60+ ____
   40–49____

2. Sex: Male____ Female____

3. Profession (check one)

   Physician ____ Statistician ____
   Nurse ____ Microbiologist
   Engineer ____ or allied lab ____
   Dentist ____ Sanitarian ____
   Educator ____ Other (specify)

   _____

4. In which state do you work?_____

5. Annual Salary:

   Under $5,000____ $ 7,500–$9,999____
   $5,000–$7,499____ $10,000+ ____

6. Agency type:

   Government ____ Educational ____
   Voluntary ____ Business ____
   Hospital ____ Other (specify)

   _____

7. Number of years in public health:

   Less than 5____ 15–19____
   5– 9____ 20+ ____
   10–14____

8. Number of years in APHA:

   Less than 5____ 15–19____
   5– 9____ 20+ ____
   10–14____

9. Section Affiliation _____

10. Have you ever been active in the affairs of the Association (i.e., served as a section officer or on a committee, or presented a paper at a meeting, etc.)?

    Yes____ No____

Attendance at Annual Meetings

11. Which recent Annual APHA Meetings have you attended? (check each)

    1957____ 1954____
    1956____ 1953____
    1955____ None of these____

11a. When you did attend the Annual Meeting, what was the source of funds for your expenses?

____Major expenses paid by agency
____Personal funds only
____Transportation or living expenses only paid by agency
____Expenses paid by source other than agency where I work
____Other arrangements (specify)

_____

_____

_____

11b. When you did not attend the APHA meeting, which of the following was the major reason?

____The program was of no special interest
____Expenses would not be paid
____Attended other more important meetings that year
____It was not my turn to go
____Other obligations prevented attendance (specify)
____Other reasons (specify)

_____

_____

11c. Would you ordinarily attend an Annual Meeting at your own expense if it were within

____ 50 miles
____100 miles (check maximum
____250 miles distance you would
____500 miles go at own expense)
____any distance

12. Why do you belong to APHA? Rank in order of importance, 1 to 3, the most important of the following reasons:

____Attendance at Annual Meetings
____Subscription to Journal
____Identification with national professional organization
____Membership is expected
____To obtain member services
____Stimulation by section or Association Committees
____Acquaintance with professional colleagues
____To keep up with developments
____Other reasons (specify)

_____

_____

Membership in Local Organization

13. Do you belong to the local (state) public health association?

Yes____ No____

13a. If you do not belong to the local public health association, please rank in order of importance, 1 to 3, the most important of the following reasons:

____The programs are unsatisfactory
____The meeting times are inconvenient
____The meeting places are inconvenient
____It is not worth the cost
____There is no real need for local group
____I've never been asked to join
____I don't know much about it
____Other reasons (specify)

_____

American Journal of Public Health

14. What do you read (or scan) in the Journal? (check appropriate category in each case)

	Always	Usually	Sometimes	Never
a. All articles (formal papers)				
b. Selected articles				
c. Editorials				
d. Book reports				
e. Annotated bibliography				
f. News of affiliated societies, branches				
g. News from the field				
h. Employment opportunities				
i. Association news				
j. Credit lines				

Comments: In the remaining space please tell us anything you think APHA could do that would improve its services and usefulness to the membership and its affiliates.

_____

Since a relatively small sample has been chosen for this questionnaire, it will be essential to follow-up those who do not reply in a reasonable time. Hence your name is requested. As soon as the Chairman has received this questionnaire from you, this section bearing your name will be removed to preserve anonymity.

Name_____

Exhibit 1 shows the questionnaire which was sent to APHA members. In the form mailed to members of Affiliated Societies, items 12, 13, and 13a were omitted and items 8, 9, 11, 11a, 11b, and 11c were modified to refer to the state association rather than the national. Item 13 queried about membership in the APHA and asked for reasons why they did not belong, in these terms:

13a. If no, rank in order of importance 1 to 3, the most important of the following reasons:

____I can't go to Annual Meetings
____The dues are too high
____My co-workers don't belong
____I've never been invited to join
____I can see the Journal anyway
____It's mainly for higher-ups
____I don't know much about it
____The state organization is enough
____Other reasons (specify)

_____

13b. Do you feel you are missing any benefits by not belonging to APHA?

Yes____ No____

13c. If yes to 13b what benefits do you lose?

Regarding the Journal, non-APHA members were also asked whether they see it regularly or occasionally.

The "A" questionnaire was mailed to 583 members on March 9, 1959. A follow-up on April 1 went to 220 nonrespondents; four questionnaires had been returned undelivered. At the cutoff date on May 26, 474 completed questionnaires had been received, an 81.9 per cent response. Despite this excellent return, possible nonresponse bias of unknown extent must be considered. Judgmentally, it does not seem that it could be so extreme as to affect radically the conclusions drawn from the responses.

Nonmembers—A straightforward sampling of the members of Affiliated Societies was not possible because of unequal availability of membership rosters. However, an effort was made to represent the entire country geographically by deliberately choosing groups of states from each of the four regions. (The regions correspond to the three branches—Western, Southern, and Middle States—and the Northeastern-Middle Atlantic States as the fourth.) In this case a systematic sample of 8 per cent of the rosters of the selected affiliates was taken in the expectation that this would produce about 500 respondents. On March 11, 761 questionnaires were mailed to members of the Affiliated Societies. (Members of the APHA had been excluded before the selection was made.) Nondelivery accounted for 29 questionnaires, and completed returns after one follow-up totalled 463, a response rate of 63.3 per cent. Returns from members of specific Affiliated Societies varied widely from 17 to 75 per cent, however.

Validity of Findings

Several factors indicate that findings of the survey of APHA members may properly be generalized to the total membership, and that valid conclusions may be drawn regarding the membership in 1959. The response rate is exceptionally high for a mail survey of this kind. Furthermore, comparison of the returns by Section affiliation with the known APHA distribution of membership by Section shows a statistically reasonable conformance of the two. In addition, the distribution of responses by region is a good approximation of APHA membership by region.

No similar known distributions exist for nonmembers against which the distributions from the "B" questionnaires could be compared. The response rate is, of course, lower than that for the APHA group, and there is no way of knowing what biases may exist in the returns. As a result, the data regarding nonmembers serve only to provide an impression of the characteristics and attitudes of the nonmembers of the APHA. The impressions obtained from these data, however, are considered sufficient for use, for example, as guides for membership campaigns or other stimulations of interest in the national organization. They also seem satisfactory for the comparisons which are described later.

Table 1

Age	APHA No.	%	State No.	%
20–	14	3.0	52	11.2
30–	82	17.3	107	23.1
40–	162	34.2	141	30.5
50–	160	33.8	106	22.9
60+	55	11.6	54	11.7
NA	1	0.2	3	0.6
Total	474		463	

Findings

Tables 1 to 11 show the major distributions for both samples. Those for APHA members are uniformly based on 474 responses, and those for nonmembers in Affiliated Societies are based on 463 responses. Failures to respond to any single question (NA in tables) are uniformly carried as one item in all distributions; resulting percentages are hence a little less than they otherwise would be, and this deficiency varies from table to table. Its possible extent can be estimated by the reader from the data. In most instances, the differences in the distributions for the two groups are of such magnitude that it seems reasonable to assume they represent different populations, despite the lack of assurance that the nonmember sample is representative of the population from which it was drawn. Moreover, the findings are in keeping with expectations.

A few of these findings may be worth pointing out. APHA members are older (median age, 48.7 years) compared to nonmembers in the affiliates (median age, 45.0 years). In the latter group, 34 per cent are less than 40-years-old, whereas only 20 per cent of the APHA members are in this age group.

Physicians comprise nearly one-third of the APHA membership (31.6 per cent). Together with nurses and educators (both health educators and academicians), they make up 58 per cent of total membership. On the other hand, physicians account for only 7 per cent of the Affiliated Society membership (exclusive of APHA members who also may belong), while nurses (33.5 per cent) and sanitarians (16.2 per cent) make up the bulk (49.7 per cent) of this group.

With reference to salary, a notable difference between members and nonmembers is observed. The median salary of APHA members is $9,464.28 annually, and almost two-thirds earn $7,500 a year or more. In contrast, the median salary of nonmembers is $4,332.05, and 81.2 per cent earn less than $7,500 a year.

These figures suggest a major factor militating against efforts to induce nonmembers to join the national organization even though their membership in the affiliate gives evidence of their interest in the professional organization. At the same time, the figures indicate a real need for the state affiliates, which can bring some of the benefits of a professional organization to those who feel they cannot afford to look beyond the local group. Since one of the purposes of local affiliates is to make it possible for more public health workers to par-

Table 2

Profession	APHA No.	%	State No.	%
Physician	150	31.6	32	6.9
Nurse	73	15.4	155	33.5
Engineer	26	5.4	18	3.8
Dentist	14	3.0	6	1.2
Educator	54	11.4	21	4.5
Statistician	16	3.3	6	1.2
Laboratory	44	9.3	26	5.6
Sanitarian	18	3.8	75	16.2
Other	78	16.5	122	26.3
NA	1		2	
Total	474		463	

Table 3

Salary	APHA No.	%	State No.	%
–$5,000	28	5.9	262	56.6
5,000–	120	25.3	114	24.6
7,500–	98	20.7	42	9.1
10,000+	204	43.0	36	7.8
None	6	1.3	2	0.4
NA	16	3.4	7	1.5
Total	472		463	

ticipate in activities of the professional organization, it is satisfying to observe that nonmembers of APHA apparently do attend rather frequently the meetings of the affiliate to which they belong. Nearly one-third of them attended three or more of the previous five annual sessions. APHA members, on the other hand, get to Annual Meetings of the Association less frequently; fewer than one in five had attended three or more of the previous five Annual Meetings.

In view of the relative distances, time, and expense involved, this observation is not surprising and points up the need for local affiliates as a mechanism for exchanging ideas, keeping up-to-date with developments, and maintaining relationships with professional colleagues.

Lest the facts regarding participation at APHA meetings raise the issue of "the same people appearing at Annual Sessions every year," the reader is referred to another study made for this committee's information.

The names of all program participants in each program for the past five Annual Meetings were reviewed for duplication. We found that 2,788 names were listed, representing 2,045 individuals who actively participated in the meetings as speakers, panel members, etc.

Of the 2,045, only 20 (or 1 per cent) appeared in all five years. Another 63 (or 3 per cent) were listed in four of the years, 97 (4.7 per cent) were found three times, and 280 (13.7 per cent) were active at only two meetings. The surprising and significant fact is that 1,585 (or 77.5 per cent) had appeared only once in the five-year period.

Employees of official agencies form the bulk of members of both the national and local groups, while employees of educational institutions are relatively more frequent in the APHA. Selection of states for the nonmember questionnaire may have had an effect on this.

The APHA member, on the average, has been in the field of public health more than 15 years (median, 16.2) and a member of the Association almost 11 years (median, 10.5 years). The average member of the state affiliate has been less than 12 years in public health (median, 11.4) and a member of the affiliate about seven years (median, 6.6).

The composite of the findings suggests some inferences about relationships between the affiliates and the national Association.

The general attributes of the members of state affiliates—younger age, lower salaries, relatively new to public health, belonging to, and active in, the state society—should make them can-

Table 4

Annual Meeting Attendance—Last 5 Years	APHA No.	%	State No.	%
None	226	47.7	142	30.7
1	104	21.9	138	29.8
2	50	10.5	38	8.2
3	41	8.6	42	9.1
4	28	5.9	38	8.2
5	24	5.1	65	14.0
NA	1		–	
Total	474		463	

Table 5

Agency	APHA No.	%	State No.	%
Government	258	54.4	314	67.8
Voluntary	42	8.9	28	6.0
Hospital	17	3.5	12	2.6
Educational	76	16.0	30	6.5
Business	26	5.4	15	3.2
Other	39	8.2	32	6.9
None	4		2	
NA	12	2.5	30	6.5
Total	474		463	

didates for APHA membership in future years.

However, with large segments of the affiliate membership in the nursing and sanitarian professions where salaries are relatively low, the number of potential candidates for APHA membership is reduced because of the salary limits many of them may expect.

Members of local affiliates already have been observed to attend annual meetings of their association more frequently than do members of the APHA. Of interest and perhaps of possible significance are the facts in Table 8 that nearly one of four of the members of local affiliates reported that they paid their own expenses to attend state meetings while an additional 12 per cent paid part of their expenses.

The proportions are considerably smaller in connection with attendance at Annual Meetings of the APHA. These differences have to be viewed, of course, in the light of relatively greater costs involved in attending the national sessions, limited travel funds in budgets, and legislative or administrative restrictions on out-of-state travel. Respondents cited "other obligations" most often as the major deterrent to attendance at Annual Meetings of the APHA. Next in importance was the fact that expenses would not be paid (Table 9). More than one of ten respondents said that the major reason for not going to the APHA was that their attendance that year at another meeting was more important to them. With so many varied professional interests enfolded in the APHA mantle, conflicts must inevitably occur. Maintenance of enthusiasm for APHA membership, activities, and attendance demands attention to these varied interests. APHA must also compete among younger and lower-salaried public health workers with the professional organizations of their specific disciplines. These factors are important to remember in membership drives.

Among members of affiliates, "other obligations" were also of primary importance in preventing attendance at annual meetings. The second-place rank of "taking turns" among state members can be appreciated, however, since someone must "tend the store" to maintain public services. The lesser importance of this reason in keeping APHA members from attending national sessions may indicate the fewer direct service obligations of APHA members, who appear generally to be in the upper hierarchy in terms of age, experience, and salary. Furthermore, a smaller propor-

Table 6

Years in Public Health	APHA No.	%	State No.	%
–5	49	10.3	98	21.2
5–	69	14.6	95	20.5
10–	89	18.8	105	22.7
15–	72	15.2	56	12.1
20+	169	35.7	91	19.7
Not in Public Health	9	1.9	5	1.1
NA	17	3.5	13	2.8
Total	474		463	

Table 7

Years in Association	APHA No.	%	State No.	%
–5	116	24.5	179	38.7
5–	106	22.4	128	27.6
10–	108	22.8	73	15.8
15–	59	12.4	29	6.3
20+	76	16.0	32	6.9
Not in Association	–	–	2	–
NA	9	1.8	20	4.4
Total	474		463	

tion of APHA members may be employed in local departments which maintain direct service to the public.

It is of some interest that roughly the same proportions of APHA and state members indicate they are active in the respective organizations.

When more than two-thirds, however, admit that they are "inactive," perhaps more intensive efforts are needed to increase participation. The criteria suggested for "activity" may have had some influence in determining the answer to this item: "Service as a section officer or on a committee or reading a paper" was intended to give a broad scope to the meaning of the term but may have been taken as limiting.

Some satisfaction can perhaps be taken from the report that more than one of ten members would go any distance at personal expense to attend an APHA meeting. Among the state affiliates, one of 20 would undertake a journey of unlimited distance at personal expense. On the other hand, a maximum of 250 miles was placed by 58.8 per cent of APHA respondents, while 82.2 per cent of state members said they would defray their own expenses to go this distance to a meeting. Except as an indication of personal attachment and enthusiasm by members of both groups, it is difficult to attach any significance to this contrast of APHA members and state members from these figures. Individual respondents would have faced the questions with quite different frames of reference so far as distance is concerned, despite the mileage identities.

A few special questions were included on each inquiry form to elicit information not applicable to both groups. On that sent to APHA members, an attempt was made to find out why APHA members want to belong to the Association. Respondents were given the opportunity to indicate three choices. The same four reasons for membership came up as first, second, third, and fourth choices, though not in the same order. In aggregate, counting each reason once, whether it was first, second, or third choice, the primary reason for belonging to the APHA selected by respondents was "Acquaintance with professional colleagues." The second most important reason was selected as "Identification with the professional organization"; the third was "Subscription to the Journal"; and the fourth was "Stimulation by Section or Association Committees." If these are

Table 8

Source of Funds	APHA No.	%	State No.	%
Agency	201	42.4	193	41.7
Personal	78	16.5	108	23.3
Part agency	24	5.1	57	12.3
Other source	7	1.5	4	.8
Other arrangement	20	4.2	24	5.2
Never attended	68	14.3	27	5.8
NA	76	16.0	50	10.7
Total	474		463	

Table 9

Major Reason for Not Attending Meetings	APHA No.	%	State No.	%
Program no special interest	38	8.0	28	6.0
Expenses not paid	114	24.0	47	10.1
Other meetings that year	55	11.6	28	6.0
Not my turn	26	5.4	55	11.8
Other obligations	151	31.7	135	29.1
Other reasons	61	12.8	53	11.3
9–	7	1.5	22	4.7
NA	22	4.7	95	20.5
Total	474		463	

the most important reasons for the present members to maintain membership, they may be suggestive of factors to emphasize in selling the organization to candidates for membership.

Just as members were asked why they belonged to the APHA, the nonmembers were asked why they did not belong. Summarizing the choices as was done for the question to APHA members, the most frequent reply was that they "Can't go to Annual Meetings." The second most frequent specific reason was "I don't know much about it"; while the third was "The dues are too high." The first and last of these reasons are difficult to overcome, but it seems surprising that 124 of 463 public health workers claim they do not know much about the APHA, especially since another 78 say that one of the reasons they do not belong is that they have never been asked! Excluding duplications, 167 of the 463 respondents said either that they had never been asked or did not know much about the APHA. Among the other reasons given for nonmembership in APHA were "too many other organizations to which one must belong" (33), "lack of funds or expenses too great" (16), "inertia or procrastination" (7), "distance to Annual Meetings too great," "lack of benefits to membership," and "lack of agency support and encouragement" (6 each), "don't have time" (5), and miscellaneous individual comments.

It is perhaps significant that of 345 who answered the query whether they thought they were missing anything by not belonging to the APHA, 167 (48.4 per cent) gave a negative response, and an additional 10 per cent said they didn't know. If the major motivations for membership, as found in this study, are acquaintance with professional colleagues and identification with the national professional organization, what motivation exists for low-salaried personnel in nonmedical, nonprofessional titles?

Perhaps they need to see themselves better as "professional public health workers" who will benefit by contact with colleagues and the national professional organization as well as the state association.

On the other side of the picture, nearly one of five of the members of Affiliated Societies said they had been to a national meeting of the APHA. Examination of the data by state (remem-

Table 10

Active in Association	APHA No.	%	State No.	%
Yes	130	27.4	148	31.9
No	337	71.1	310	67.0
NA	7	1.5	5	1.1
Total	474		463	

bering that all states were not included in the sample) suggests that those in or near states where APHA has held meetings are more likely to have attended APHA. Nearly one of ten said they belonged to the APHA, but this answer is subject to some question because the lists had been carefully screened to make sure that APHA members were not included in the group. If some members of Affiliated Societies think they belong to the national organization when they do not, it may be worth looking into. Do they simply forget that they have not paid their dues and believe they still belong, or do they think they belong to the national organization simply because they are members of the state affiliate? A similar question addressed to APHA members showed that nearly two-thirds of them believed they were members of the state affiliate; actually about 50 per cent do belong. This is hardly adequate to meet the present stipulations of the APHA By-Laws, which require a 75 per cent membership of APHA members in the area. Further study of this requirement is being made by the Committee on Affiliated Societies and Regional Branches.

APHA members were also queried as to why they did not belong to the state affiliate. The item was poorly answered, 324 of the 474 respondents not replying at all. Among the small proportion who replied, the most important reasons were cited as lack of knowledge of the organization and lack of invitation to join. Some 63 persons gave other reasons, the most frequent of which was that they belonged to too many other organizations.

Journal Leadership

The editorial staff of the Journal, as well as its contributors, can take satisfaction in its readers' devotion. Well over 80 per cent of respondents said they "always or usually" read or scan some of the papers that appear. Editorials are "always or usually" reviewed by almost two-thirds of the members, with an additional 20 per cent saying they sometimes look at them, presumably depending upon their subject matter. The Book Reviews attract three out of four readers, at least some of the time, while the Annotated Bibliography includes 30 per cent of the members as regular readers, and another 35 per cent occasionally scan this section of the Journal. More than half the membership scans the Employment offerings at least sporadically.

The non-APHA members in state affiliates were also asked about their readership of the Journal. Most of them

Table 11

How Far Will Attend at Own Expense?	APHA No.	%	Miles	State No.	%
50 miles	73	15.4	25	76	16.4
100	94	19.8	50	123	26.4
250	112	23.6	100	131	28.2
500	76	16.0	250	52	11.2
Any	55	11.6	Any	26	5.7
None	18	3.8	None	10	2.2
NA	46	9.4	NA	45	9.6
Total	474			463	

responded, and 73 per cent said that they see the Journal, but in answer to the question of how often they see it, only one-third indicated they saw it regularly. In summary, only a little more than one in four nonmembers can be said to see the Journal routinely.

News From the Field attracts nearly 55 per cent of members regularly, while another 23 per cent sometimes look through these items. Similar proportions of the members read the Association News. The appeal of News of Affiliates may depend upon whether items regarding one's own state or branch association are included, for only one-third of the members claim to look through this section regularly, with another third scanning it sometimes.

All these figures are minimal, since response failures on individual sections of the Journal varied considerably, from 11 per cent regarding Journal papers to 26 per cent for the Annotated Bibliography and Employment. Since failure to respond could be interpreted as lack of interest, it was decided it would be more conservative to assume such lack of interest, rather than to assume that the readership patterns of nonrespondents resembled those of respondents. Hence, the percentages were not based simply upon the distributions of those responding.

Symposium on Recent Developments in Research Instrumentation

The 10th Annual Instrument Symposium and Research Equipment Exhibit are to be held October 3-6 and October 4-7, respectively, at the National Institutes of Health reservation in Bethesda, Md.

The nation's leading makers of scientific apparatus, sponsors of the research equipment show, will display examples of the latest mechanical, optical, and electronic devices for laboratory and clinical investigations. These will be exhibited concurrently with the symposium on recent developments in research methods and instrumentation.

The symposium's opening session, presided over by Dr. Sidney Udenfriend of the National Heart Institute's Laboratory of Clinical Biochemistry, will deal with biological applications of fluorescence. Other topics on the scientific program include infrared spectrophotometry, activation analysis, ultracentrifugation and electrophoresis, microscopy, and membrane electrodes.

All persons with professional or technical interest in research instrumentation are invited to attend the symposium and view the exhibit. Further information from James B. Davis, executive secretary of the Symposium, NIH, Bethesda 14, Md.

NEWS OF AFFILIATED SOCIETIES AND BRANCHES

APHA Affiliated Societies and Branches

SOCIETY AND SECRETARY

ALABAMA PUBLIC HEALTH ASSOCIATION, Ralph Roberts, State Health Dept., Montgomery
ARIZONA PUBLIC HEALTH ASSOCIATION, Joseph J. Weinstein, Maricopa County Health Dept., Phoenix
ARKANSAS PUBLIC HEALTH ASSOCIATION, Mrs. Vada Russell, State Health Dept. Bldg., Little Rock
CALIFORNIA, NORTHERN PUBLIC HEALTH ASSOCIATION, Mrs. Joan Davis, City Health Dept., San Jose
CALIFORNIA, SOUTHERN, PUBLIC HEALTH ASSOCIATION, Dorothea Hansen, City Health Dept., Los Angeles 12
COLORADO PUBLIC HEALTH ASSOCIATION, Alice de Bruyn Kops, 4660 S. Delaware, Englewood
CONNECTICUT PUBLIC HEALTH ASSOCIATION, Shirley Thayer, R.N., 61 Arnold Way, West Hartford 7
CUBAN PUBLIC HEALTH SOCIETY, Dr. Raphael Calvo Fonseca, Calle 19 No. 511 Altos Vedado, Havana
FLORIDA PUBLIC HEALTH ASSOCIATION, Everett H. Williams, Jr., P. O. Box 210, Jacksonville
GEORGIA PUBLIC HEALTH ASSOCIATION, Mrs. Martha Power, State Health Dept., Atlanta 3
HAWAII PUBLIC HEALTH ASSOCIATION, Alison MacBride, R.N., 510 S. Beretania St., Honolulu 13
IDAHO PUBLIC HEALTH ASSOCIATION, Ralph Carpenter, 120 N. Capitol Blvd., Boise
ILLINOIS PUBLIC HEALTH ASSOCIATION, William J. Hixon, Evanston Health Dept., Evanston
INDIANA PUBLIC HEALTH ASSOCIATION, Malcolm J. McLelland, State Board of Health, Indianapolis
IOWA PUBLIC HEALTH ASSOCIATION, Lloyd Coe, Iowa Hospital Association, 1012 Liberty Bldg., Des Moines
KANSAS PUBLIC HEALTH ASSOCIATION, W. W. Wilmore, Kansas Tuberculosis and Health Assn., 1134 Topeka Ave., Topeka
KENTUCKY PUBLIC HEALTH ASSOCIATION, Miss Peggy Fisher, 275 E. Main St., Frankfort
LOUISIANA PUBLIC HEALTH ASSOCIATION, A. G. Owens, P. O. Box 1872, Monroe
MARYLAND PUBLIC HEALTH ASSOCIATION, Mary Thompson, Prince Georges County Board of Education, Upper Marlboro
MASSACHUSETTS PUBLIC HEALTH ASSOCIATION, Mrs. Elizabeth K. Caso, Dept. of Health, Cambridge
MICHIGAN PUBLIC HEALTH ASSOCIATION, Marjorie Delevan, 1817 West St. Joseph Street, Lansing
MINNESOTA PUBLIC HEALTH ASSOCIATION, D. S. Fleming, M.D., State Dept. of Health, University Campus, Minneapolis
MISSISSIPPI PUBLIC HEALTH ASSOCIATION, H. E. Boone, P. O. Box 1700, Jackson
MISSOURI PUBLIC HEALTH ASSOCIATION, Mrs. Nadia Craver, 5th Fl., State Office Bldg., Jefferson City
MONTANA PUBLIC HEALTH ASSOCIATION, Thomas S. Willett, Montana Public Health District I, Hardin
NEBRASKA PUBLIC HEALTH ASSOCIATION, George R. Underwood, M.D., 935 R. St., Lincoln
NEW JERSEY PUBLIC HEALTH ASSOCIATION, Waldo McNutt, M.P.H., Delaware River Drive, Frenchtown
NEW MEXICO PUBLIC HEALTH ASSOCIATION, Daniel T. Marley, P. O. Box 8066, Albuquerque
NEW YORK CITY, PUBLIC HEALTH ASSOCIATION OF, Frances Ann McVey, 4317 Robinson St., Flushing 55, N. Y.
NEW YORK STATE PUBLIC HEALTH ASSOCIATION, Mrs. Kathleen Boland, Rensselaer County Health Dept., Troy
NORTH CAROLINA PUBLIC HEALTH ASSOCIATION, Robert W. Brown, Box 7525, Asheville
NORTH DAKOTA PUBLIC HEALTH ASSOCIATION, Alice H. Peterson, M.D., State Dept. of Health, Bismarck
OHIO PUBLIC HEALTH ASSOCIATION, Mrs. June O'Donnell, 3516 Braddock St., Dayton
OKLAHOMA PUBLIC HEALTH ASSOCIATION, Bill Burk, 3400 North Eastern, Oklahoma City
OREGON PUBLIC HEALTH ASSOCIATION, Muriel David, City Bureau of Health, 203 N.E. 20th Ave., Portland
PENNSYLVANIA PUBLIC HEALTH ASSOCIATION, Emma J. Petach, R.N., 324 N. Second St., Harrisburg
PUERTO RICO PUBLIC HEALTH ASSOCIATION, Mrs. Mae de Acin, Apartado 211, San Juan 2
SOUTH CAROLINA PUBLIC HEALTH ASSOCIATION, Emily Anne Easterling, Richmond County Health Dept., Columbia
SOUTH DAKOTA PUBLIC HEALTH ASSOCIATION, Alice Brady, R.N., State Dept. of Health, Pierre
TENNESSEE PUBLIC HEALTH ASSOCIATION, C. B. Tucker, M.D., State Dept. of Health, 420 Sixth Ave., N., Nashville
TEXAS PUBLIC HEALTH ASSOCIATION, Joseph N. Murphy, Jr., State Dept. of Health, Austin
UTAH PUBLIC HEALTH ASSOCIATION, Katherine Brandon, M.D., P. O. Box 25, Foothill Station, Salt Lake City
VIRGINIA PUBLIC HEALTH ASSOCIATION, Mrs. Helen W. Wiesmann, 1220 E. Broad St., Richmond
WASHINGTON STATE PUBLIC HEALTH ASSOCIATION, Caesar Branchini, Benton-Franklin County Health Dept., Pasco
WEST VIRGINIA PUBLIC HEALTH ASSOCIATION, Mrs. Katherine L. Brown, State Dept. of Health, Charleston 5
WISCONSIN ASSOCIATION FOR PUBLIC HEALTH, Paul Weis, RR No. 2, Waunakee
MIDDLE STATES BRANCH, APHA, Thelma Luther, Dept. of Health, Des Moines, Iowa
SOUTHERN BRANCH, APHA, M. L. McDonald, Dallas Health Museum, Dallas, Tex.
WESTERN BRANCH, APHA, Robert G. Beaumier, 1309 Smith Tower, Seattle, Wash.

Western Branch Explores Man's Ways

The 27th annual meeting of the Western Branch of the APHA was held in Denver, Colo., May 24-26, with the Colorado Public Health Association meeting jointly. The meeting, centering on "The Application of Behavioral Sciences to Public Health Problems," brought out 750 registrants.

The opening general session's theme was "Public Health Looks to the Behavioral Sciences." Addressing the topic "Where Do We Need Help?" Hugh Leavell, M.D., professor of public health practice, Harvard University School of Public Health, pointed out that social scientists have provided public health with greater understanding of the learning process, of the community and its structure, and of the roles and professional interrelationships of health workers. He also spoke of the aid that social sciences can offer in research

methodology, inservice training, and in a better understanding of the administrative process.

Edward Wellin, Ph.D., director of the APHA study of behavioral sciences in public health, dealt with "How Do We Get Help?" He suggested that social science departments in colleges and universities were a source of largely untapped help and also named a series of individuals, foundations, and agencies that could provide useful information or direct aid. Unfortunately, public health workers are not always certain in advance as to what help they want from the social sciences, and social scientists are equally unsure as to how they can be of assistance to public health.

The second general session was on "Teamwork of Behavioral Sciences with Public Health." A series of reports were made on field work which illustrates teamwork. Gordon MacGregor, Ph.D., anthropologist with the Public Health Service, discussed social determinants of public health practice. In his study of a Great Plains community, he found that its people tended not to think of health as a matter of public concern but regarded community health problems as appropriately managed through private and voluntary means. Marian Hotopp, M.D., district health officer, Santa Fe, N. M., who discussed "Changing Public Health Approaches in Work with Spanish Americans," said, "We are attempting to develop a philosophy by public health nurses of working with people who do not think like we do. A public health program for a different cultural group cannot be established until the thinking, the tradition, the beliefs, the fears and the hopes of the group are understood." John J. Conger, Ph.D., clinical psychologist, University of Colorado Medical School, reported on his studies of emotional factors in traffic accidents, conducted on airmen at Lowry Field, Denver. "Through psychological and psychophysical testing we were able to differentiate between high accident and nonaccident subjects in 73 per cent of cases in repeated samples over several years." Dr. Conger is also conducting a study on 7,500 high school sophomores, testing them before they begin to drive, and following their driving behavior for a three year period.

The third general session dealt with the "Bases of Human Behavior and their Application to Public Health." Speaking on the "Physiological Basis," Frances Ilg, M.D., director of Gesell Institute of Child Development, Yale University, described the different body types observed in people, classifying them as endomorphic, mesomorphic, and ectomorphic, and pointed out the characteristics and qualities of each type. We go through six stages of growth in our lives, she said, but there are also cycles of growth which tend to repeat themselves. The "Psychological Basis" was covered by Andie Knutson, Ph.D., lecturer in public health and director of the behavioral science project, University of California School of Public Health. Dr. Knutson spoke of the multiple aspects of man in his psychological behavior: man as a social animal, as part of environment, as a unity, as unique; also man as a creature who learns social behavior and whose behavior is motivated; and man in his private world. "This private world which man creates through his perceptions serves him as an essential map or chart whereby he can evaluate future activities against past experience and obtain guidelines for future action."

Malcolm H. Merrill, M.D., president of the APHA, gave the theme address and summary at the fourth and final general session of the conference on "Implications of Behavioral Sciences and Social Change for the Future of Public Health." Dr. Merrill emphasized the importance of behavioral scientists to

the success of public health programs. "One of the most important functions . . . of the social scientist is in helping us engineer public consent to the course of action decided upon, to motivate the public to behave in the manner that will result in health improvement. We know that giving them facts alone is not enough, that fear of some far-off contingency will not move them; here, more than anywhere else, we need the kind of research and guidance that the social scientists can contribute."

On the second day of the conference, more than 100 speakers and panel members took part in meetings of the ten Western Branch Sections. Registrants assembled in the evening for the convention banquet and saw Wesley O. Young, D.M.D., M.P.H., receive the Sippy Award, given annually by Western Branch, APHA, to an individual under 45 years of age who has made an outstanding contribution to the public health field. Dr. Young, chief of the Dental Health Section of the Idaho Department of Health, was honored for his work in the dental health programs of Idaho, Oklahoma, and Colorado. Honorary memberships in Western Branch, APHA, were awarded to: Harry B. Hommon, retired sanitary engineer director, Public Health Service, one of the founders of the Western Branch, APHA; Myrtle Greenfield, Ph.D., retired director of laboratories, New Mexico State Health Department; and Max Levine, Ph.D., a professor of bacteriology at Iowa State College from 1913 to 1947 and now chief of the Bureau of Laboratories of the State Department of Health of Hawaii. Entertainment supplied by the Colorado Public Health Association was a series of skits called "Misbehavioral Scions" (including one with five "Fluorescent Anti-Bodies").

At a meeting of the Occupational Health Section Dr. Merrill presented the Paper Cup and Container Institute's annual Crumbine Award to the San Bernardino (Calif.) County Health Department. The county's health officer, M. E. Cosand, M.D., and director of sanitation, Richard E. Elliot, accepted the award for their department's outstanding environmental health program.

The Colorado Public Health Association held its 23rd annual business meeting at a breakfast session on May 25. Some highlights of the CPHA's past were reviewed by Roy L. Cleere, M.D., the state health officer, and 1959-1960 CPHA president. An outstanding achievement of the year was the increase in membership from 510 to a record 604 members.

The new president of CPHA is John S. Anderson, M.D., M.P.H., director, Pueblo County Health Department, Pueblo, Colo. Other 1960-1961 officers are:

President-Elect—Franklin Fiske, director of sanitation, Denver Department of Health and Hospitals, Denver
Vice-President—Mrs. Lou Boatright, Purchasing Department, State Health Department, Denver
Secretary—Alice de Bruyn Kops, Englewood
Treasurer—Elizabeth Kaho, Ph.D., executive director, Denver Hearing Society, Denver

The new president of Western Branch-APHA is Edward L. Russell, M.D., health officer, Orange County Health Department, Santa Ana, Calif., succeeding John A. Lichty, M.D., pediatric consultant, Colorado State Department of Health. Other officers for 1960-1961 are:

President-Elect—S. P. Lehman, M.D., director, Seattle-King County Health Department, Seattle, Wash.
Vice-President—J. B. Askew, M.D., director of public health, San Diego County Health Department, San Diego, Calif.
Vice-President—Miss Jefferson I. Brown, director of public health nursing, Arizona State Department of Health, Phoenix, Ariz.
Vice-President—Larry Gordon, director, Albuquerque Health Department, Albuquerque, N. M.
Secretary-Treasurer (Re-elected)—Robert G. Baumier, Washington State Department of Public Health, Seattle, Wash.
Representative to APHA Governing Council—John A. Lichty, M.D.

The next meeting of the Western Branch will be held June 27-29, 1961, in San Diego, Calif. Berwyn F. Mattison, M.D., executive director, and Robert E. Mytinger, M.P.H., director, Western Regional Office, represented the APHA staff at the Denver meeting.

Editor's Note: Voting on Western Branch, APHA, Resolutions was completed after the meeting. Resolutions on the following topics were passed:

Local Health and Welfare Department Relationships; Development of Poison Control Centers and Programs; Trained Leadership in Medical Care Programs; Education in Narcotic Control; Support for Public Health Research; Accident Prevention; Establish a Committee to Study Ways and Means of Improving General Public Immunization; Migrant Labor; Adjustment of Fluorides in Public Water Supplies; Comprehensive Hospital Sanitation Programs; Development of Resources for Public Health Nursing Research; Misleading Advertising of Health Products and Services.

Missouri: Sharing the Leadership

The 34th Annual Meeting of the Missouri Public Health Association in Jefferson City, Missouri, on May 9-11, 1960, attracted 350 registrants who were encouraged to be on the dot for the beginning of the first general session by being served a buffet luncheon which immediately preceded it.

At this first session H. M. Hardwicke, M.D., acting director of the Missouri Division of Health, spoke on the "Recent Developments in Public Health Practice" and activities within the Division of Health. Robert L. McNamara, Ph.D., professor of rural sociology, University of Missouri, and 1959-1960 president of the MPHA, gave an accounting of "Activities of the MPHA and Future Plans." Thomas R. Hood, M.D., deputy executive director of the American Public Health Association, was the main speaker. In his paper, "Public Participation in Public Health," Dr. Hood reaffirmed the principle that "Public health . . . exists of, for, and by the people. The health problems of people living individually, in families, and in communities should determine its objectives, its policies, its programs and administrative direction. . . ." In a democratic society, he pointed out, citing the APHA Task Force Report, "an individual will always retain primary responsibility for his own health and that of his family. A major task of public health is to increase the confidence of individuals, families, and communities to cope with their own health problems." This is not an easy task, he said. "Yet, with great labors and with the help of many interested citizens we can progress. Our product is people. Our role is one of leadership. Not a leadership of a threatening, assertive or egregious kind, but a more comfortable and less demanding, less threatening, shared leadership. This leadership is conditioned by guidance and feedback from those we serve, acting not only as individuals but as members of boards of health and advisory committees."

A symposium, "And speaking of Public Health . . .," composed of W. D. Bryant, Ph.D., executive director, Community Studies, Inc., of Kansas City; Dr. C. E. Lively, professor of rural sociology, University of Missouri; the Rev. Paul C. Reinert, S.J., president, St. Louis University; Vernon E. Wilson, M.D., dean of the University of Missouri School of Medicine; and Lewis H. Hoyle, M.D., medical director, Public Health Service, Region No. 6, Kansas City, was presented at the last general session. Each participant expressed his views on public health as it pertained to his particular field. A reactor panel projected many thought-provoking questions to the participants.

The second day of the conference was given over to the meetings of the seven sections. A few highlights will suffice to show MPHA's alertness to current health and related problems. The Health Education Section discussed "Controver-

sial Issues in Health—Their Implications to Health Education" based on papers dealing with smoking and health (C. Stuart Exon, M.D., Jefferson City); sex education (Mrs. J. Hart Brown, executive director, Missouri Social Hygiene Association); fluoridation (Ralph E. Knowles, D.D.S., past president, Jefferson City Dental Society); and alcoholism (Joseph B. Kendis, M.D., St. Louis). Clarence Pearson, Health and Welfare Council of St. Louis, and Glenn Hildebrand, chief, Health Education Section, St. Louis Division of Health, also reported on "Health Education in Missouri —the 1960 Dilemma." Health officers concentrated on public relations through a panel discussion, and remarks by Bill Bray, executive secretary, Missouri Press Association. Bruce Barrington, president and general manager, Radio Station WEW, St. Louis, outlined "The ABC's of Public Relations." Color slides on "Sanitation and Health in the Land of the Pharaohs" by Lindon J. Murphy, professor of civil engineering, University of Missouri, was considered an outstanding feature of the Sanitation Section's program. Laboratory personnel focused on virology, and nurses on school accreditation and professional licensure.

The W. Scott Johnson Annual Award for outstanding contributions to public health was presented at the annual banquet to Carl E. Rice, M.D., director of the Jefferson County Health Department, Hillsboro, Mo., formerly with the Public Health Service.

In the category of association business, MPHA amended its by-laws: Each chairman of a standing committee is now a voting member of the Executive Board; a new Standing Committee on Necrology is established; four members are added to the board, to be called "Members-at-Large," who will serve for terms of two years; representatives to the APHA Governing Council and the Southern Branch, APHA, will now serve for two years rather than one; and requirements for holding office in the Association will be membership for not less than three years. A new Section of Medical Care Services was established by the Executive Board, bringing the total number of sections to eight. The membership voted to increase the dues of the Association from $2 to $4 annually. Officers for 1960-1961 are:

President—W. G. Green, executive director, Missouri Heart Association, Columbia

President-Elect—Clarence E. Pearson, planning director, Health and Hospital Division, Health and Welfare Council of St. Louis

Vice-President—Harry M. Dawdy, executive director, American Cancer Society, Missouri Division, Jefferson City

Secretary-Treasurer—Mrs. Nadia Craver, Division of Health, Jefferson City

Arkansas Public Health Travelers

Approximately 400 registrants assembled at the 12th Annual Session of the Arkansas Public Health Association (May 10-11) to discuss "Highway to Health," the conference theme. Rallying point was Little Rock.

Members and guests got some of their new directions from two Texans and a Georgian. Appropriately enough, an "oilman," Chester Lauck ("Lum Edwards") of Continental Oil Company, Houston, Tex., gave the keynote address at the first of the two general sessions.

At the second, John M. Whitney, M.D., medical director, Public Health Service, Region VII, Dallas, spoke on "Health Mobilization Planning." He described the functions of the Division of Health Mobilization, Bureau of State Services, PHS, which operates under the direction of the Office of Civil and Defense Mobilization. PHS is to "give support to the state and local governments in their health emergency preparedness programs. The skilled management of health resources will be a major element in our approach." Objectives of preattack training are first,

to develop an organization capable of training each citizen "to meet his own health needs . . ." in a national disaster; second, "to develop the capability of the community to meet its own health needs, using its own resources."

At the same session Robert J. Anderson, M.D., Assistant Surgeon General, chief, Communicable Disease Center, Atlanta, Ga., described the work going on at CDC. From this he went on to a general review of what public health in its many aspects is mapping out for itself in terms of objectives to meet pressing needs. "Getting on with the public health job is a tough assignment," he said. "It implies a lot of forward drive, with a known starting point, current position, and sense of direction." The job calls for "a superb blending of vision and down-to-earth practicality. . . . While there is much we need to learn from research, our day-to-day job consists of applying a working hypothesis formed from the vast store of knowledge that is presently available. In preparing for the future, we can benefit from the newer emphasis on social sciences, engineering, and psychology as well as on medicine in the education of health workers."

The four association sections—Clerical, Health Education, Nurses and Sanitarians—met on the afternoon of the first day of the conference. That evening at the Annual Public Health Dinner, the following persons received 25-year plaques: Mrs. Ruth Anderson, R.N., executive director, City Health Department, North Little Rock; Thomas H. Avirett, sanitarian, Miller County Health Unit, Texarkana; T. M. Dick, D.V.M., director, Meat and Milk Inspections, City Health Department, Little Rock; Sue Elder, R.N., public health nurse, City Health Department, Little Rock; Lora Parker, R.N., public health nurse, Arkansas County Health Unit, DeWitt; Jean Quimby, R.N., public health nurse, Craighead County Health Unit, Jonesboro; and Joe R. Wilson, milk inspector, City Health Department, Little Rock.

Among the requirements for receiving the "25-year award" are 25 years of employment with a state, county, or city health department and membership in the Arkansas Public Health Association for a minimum of five years.

The new president of the Arkansas association is James H. Shelton, director, Division of Plumbing, State Board of Health, Little Rock, succeeding L. B. Jones, M.D., director, Phillips County Health Unit, Helena, Ark. Other 1960-1961 officers are:

President-Elect—Eugene Spratt, director, Division of Hospitals, State Board of Health, Little Rock

Secretary-Treasurer—Mrs. Vada Russell, secretary-treasurer, Procedures-Records Consultant, State Board of Health, Little Rock

Representative to the Governing Council, APHA—E. J. Easley, M.D., director, Bureau of Local Health Service, State Board of Health, Little Rock (final year of two-year term).

The 1961 meeting of the Arkansas Public Health Association will be held in Little Rock, May 9-10.

Georgia Holds 31st Convention

The 1960 annual conference of the Georgia Public Health Association ran from May 15-18 in Savannah with a registration of 584.

At the first general session Edward G. McGavran, M.D., M.P.H., dean, School of Public Health, University of North Carolina, gave a paper on "The Doctor of the Body Politic." At the same session a "Meet the Press" type of panel looked into the topic, "Milledgeville—One Year Later." Irville H. MacKinnon, M.D., superintendent of Milledgeville State Hospital (the mental hospital transferred to the jurisdiction of the state health department in 1959) was questioned by reporters of Atlanta and Savannah newspapers. On the afternoon of the first day of the conference

the nine sections of GPHA held their scientific and business sessions. Sampling some meeting topics: "Community Radiological Health Programs," "Laboratory Diagnosis of Rabies by Fluorescent Microscopy," "Nursing in Mass Casualty," and "Free Wheeling in Environmental Health." There were three joint-section meetings.

At the second and final general session registrants heard Dr. Noah Langdale, Jr., president, Georgia State College, speak on "The Road to Perfection"; Donald A. Pecsok, acting chief, Training Branch, Division of Radiological Health, PHS, Washington, D. C., on "Radiation and Public Health"; and Leo W. Simmons, Ph.D., executive officer, Institute of Research and Service in Nursing Education, Teachers College, Columbia University, on "Paradoxes in the Image of the Nurse."

State Board of Health members held sessions in Savannah in connection with the conference and were platform guests at the opening general session.

Thomas F. Sellers, M.D., director emeritus, Georgia Department of Public Health, was presented with a plaque for his outstanding service to the field of public health.

T. Oscar Vinson, M.D., M.P.H., district director of public health, DeKalb County, Decatur, succeeded C. Dexter Kimsey as president. Other GPHA officers for 1960-1961 are:

President-Elect—Carl Fox, executive director, Georgia Tuberculosis Association, Atlanta
Vice-President—Bob Swank, State Health Department, Atlanta
Secretary—Martha Power, Personnel Department, State Health Department, Atlanta
Treasurer—Eva Mae McDaniel, Accounting Department, State Health Department, Atlanta

Membership in GPHA has increased from 1,075 to 1,127 in a year's time.

APHA membership application blank on page XXVII

New Films Available

Communicable Disease Center (P.O. Box 185, Chamblee, Ga.) announces the release of three new filmstrips and a motion picture.

The latter is "Introduction to Swimming Pool Sanitation" (16 mm, color, 23½ min, purchase: $179.17) to be used in courses for pool operators or environmental hygienists in conjunction with the PHS manual "Swimming Pools—Disease Control Through Proper Design and Operation."

The filmstrips are: "Listeriosis" (35 mm, color, silent, 45 frames, with printed text and guide, purchase: $5.10), a resume of diagnostic characteristics of the disease from a clinical and bacteriological viewpoint, with text describing ecology and therapy in man and animals; "Public Health Nursing in Communicable Disease Control" (35 mm, color, silent, printed guide, 49 frames, purchase: $5.10), explaining the nurse's activities and responsibilities; and "The Nurse—Epidemiologist" (35 mm, color, sound, 95 frames, 14 min, purchase: $9.10) outlining the knowledge and responsibilities required of the public health nurse in an epidemiological investigation.

CDC makes all four available for short-term loans in the United States. For purchase, write United World Films, Inc., 1445 Park Avenue, New York 29.

EMPLOYMENT SERVICE

The following pages present information for those seeking public health personnel and for those seeking positions in public health. Other information concerning vacancies and personnel available is on file in the Association office. Anyone wishing to have the benefit of this additional information can obtain it by writing to the Vocational Counseling and Placement Service of the Association.

Advertising space in these pages is available at special rates for the use of employers or individuals. The charges are $5 for the first 50 words or fraction thereof and $1 for each additional 10 words or fraction thereof. There is no charge to members or Fellows of the Association who desire to utilize the **Positions Wanted** portion of these pages. **Closing date** for receipt of advertisements is the first of the month preceding the desired month of publication. **All correspondence should be sent to the American Public Health Association, 1790 Broadway, New York 19, N. Y.**

POSITIONS AVAILABLE

Health Officer III—$12,000. In fast growing, rapidly developing, progressive Pinal County midway between Phoenix and Tucson. Direct and develop public health program to meet community needs. M.P.H. or two years' public health experience. Apply Arizona Merit System, Capitol State Bldg., Phoenix, Ariz.

Local Health Officers—Florida. Two well organized local health units near Pensacola on the Gulf Coast. Starting salary $9,120-$11,040 dependent upon previous training and experience. Travel allowance, retirement, other benefits. Write Wilson T. Sowder, M.D., State Health Officer, Florida State Board of Health, P. O. Box 210, Jacksonville, Fla.

Public Health Officer—to head well established, efficiently functioning County Health Department. Incumbent director retiring September 1. Stable, progressive community. Salary dependent upon qualifications and experience. State qualifications, experience, and expected compensation. McLean County Health Department, Bloomington, Ill.

Public Health Physician—for Tri-County Health Department in southern Illinois. Good personnel policies, vacation, sick leave, Social Security benefits. Salary $14,000 annually for physician meeting Illinois requirements. Contact Tri-County Health Department, 1115 Cedar St., Cairo, Ill.

Assistant Health Director—City-County Unit, serving 250,000. Newly created position. Duties may be assigned according to preferences of applicant. Salary range $11,364-$13,548. M.P.H. preferred. Equivalent experience acceptable. Write to Dr. James Speers, Public Health Director, City of Des Moines, Des Moines, Iowa.

Pediatrician—for State Health Department. To act as pediatric consultant within agency and work with professional and lay groups in the field. Included in work: hospital standards, school health problems, statistical studies, future program planning. Starting salary $12,240. Ohio medical license, one-year internship, at least two years' graduate training required; preferably Board of Pediatrics or eligible. Civil service position, vacation, sick leave, annual salary increments, and retirement plan. Staff appointment to state university if eligible. Address inquiries to Division of Child Hygiene, Ohio Department of Health, Columbus 15, Ohio.

Health Officers—Coos and Yamhill County positions now open. Starting salary $13,500-$14,500, depending on qualifications. Applicants should have M.P.H. degree and some public health administrative experience. Must be eligible for licensure to practice medicine in Oregon. Social Security supplemented by state retirement and merit system coverage. Write Mr. A. T. Johnson, Personnel Director, Oregon State Board of Health, P. O. Box 231, Portland 7, Ore.

District Health Officer—Public health administrator of a district area; district epidemiologist. Plan, organize, supervise work of professional staff consisting of engineers, nurses, sanitarians, nutritionists, dental hygienists, health educators, and social workers. Requires M.D. and M.P.H. degrees and license to practice medicine in Wisconsin. Salary: Beginning level $12,048-$15,048 per year based upon number of years of residency training and certification by the American Board of Preventive Medicine. Maximum salary $16,848 per year. Civil service, vacation, sick leave, Social Security, retirement, group health and life insurance benefits, travel allowance. For

applications and further information write R. J. Siesen, Personnel Officer, State Board of Health, State Office Bldg., Madison 2, Wis. First review of applications will be on October 1, 1960.

Director, Local Health Services—Work with district health officers and professional staff in improvement of local health services. Act as liaison between district and central office staff. Requires M.D. and M.P.H. degrees, two years' residency, certification by the American Board of Preventive Medicine, and license to practice medicine in Wisconsin. Beginning salary $16,248 per year; maximum salary $18,048 per year. Civil service, vacation, sick leave, Social Security, retirement, group health and life insurance benefits, travel allowance. For applications and further information write R. J. Siesen, Personnel Officer, State Board of Health, State Office Bldg., Madison 2, Wis. First review of applications will be on October 1, 1960.

Director, Bureau of Maternal and Child Health—Plans and directs a state-wide program for the conservation and improvement of maternal and child health; coordinates and supervises the activities of the bureau. Major activities include the child guidance, school health, and nutrition programs. Requires M.D. and M.P.H. degrees, certification by the American Board of Preventive Medicine or Pediatrics, preferably the latter, and license to practice medicine in Wisconsin. Beginning salary $18,648 per year; maximum salary $20,448 per year. Civil service, vacation, sick leave, Social Security, retirement, group health and life insurance benefits, travel allowance. For applications and further information write R. J. Siesen, Personnel Officer, State Board of Health, State Office Bldg., Madison 2, Wis. First review of applications will be on October 1, 1960.

Rockford, Ill. (population 130,000). **Health Director**—Minimum qualifications: M.D. with training and experience in public health. State minimum salary required and submit resume. **Sanitary Engineer** (Public Health)—Minimum $7,627, annual step increases to maximum $9,359. Minimum qualifications: Equivalent to M.S. degree in sanitary or public health engineering. (Experience will be considered in lieu of degree.) Apply Personnel Director, Old City Hall, 126 South First St., Rockford, Ill.

Public Health Nurse Supervisor—Berkeley, Calif. Present salary range is $6,516-$7,536. Salary of $6,672-$8,112 recommended. Berkeley's unified health program is jointly administered by the city of Berkeley, Berkeley Unified School District, Visiting Nurses' Association, and the University of California. This vacancy is caused by a retirement and is a fine opportunity for a public health nurse to acquire supervisory and administrative experience. The person selected will work under the general direction of the chief of the Public Health Nursing Service and will directly supervise a group of public health nurses in all phases of the generalized nursing program. Requirements are: Master's degree in a program which shall have included courses in nursing supervision, administration, or education; and at least three years' experience in a generalized public health nursing program under nursing supervision. Apply by August 31, 1960, to the Director of Personnel, Room 19, City Hall, Berkeley 4, Calif.

Public Health Nurses—Orange County, Calif., has excellent opportunities for several public health nurses. The generalized public health nursing program includes a fine in-service training plan and a chance to work with advanced nursing students. There is excellent opportunity for advancement in a modern, rapidly expanding agency. The starting salary as a Public Health Nurse I is $464 per month with a merit increase to $489 per month in six months and additional annual merit increases to $545 per month. With additional qualifying experience all Public Health Nurse I's can advance to become Public Health Nurse II's with a top salary of $608 per month. Live within an hour's drive of all Southern California's fabulous recreational facilities. Work in a new airconditioned office building. For additional information write Orange County Personnel Office, 801-C North Broadway, Santa Ana, Calif.

Mental Health Nurse Consultant—Voluntary agency offering program of comprehensive nursing care and rehabilitation is in the process of developing a mental health program. Liberal personnel policies with salary based on preparation and experience. Assist in developing and coordinating program of follow-up care for patients and consultation to staff. Apply to Executive Director, Visiting Nurse Association of Chicago, 59 E. Monroe St., Chicago 3, Ill.

Public Health Nurse I—$5,057-$5,537. Challenging position in generalized public health nursing with progressive suburban department 17 miles west of downtown Detroit. Many liberal fringe benefits. Apply, Amalia

Krause, Nursing Director, Wayne County Health Department, Eloise, Mich.

Junior Public Health Nurse—Salary range $4,160-$4,979. Liberal retirement and sick leave benefits. New modern building. Promotional opportunities. Apply Flint Civil Service Commission, City Hall, Flint 2, Mich.

Public Health Nurses—$4,300-$5,400, according to experience. City-county health department. Help of supervisors, full-time health officer, mental health clinic, nutritionist, University of Minnesota faculty member, and health educator. Interesting community; current involvement in cooperative study of services and utilization of public health nursing; field agency for Basic Collegiate and M.P.H. nursing students. Ninety miles from the Twin Cities. Apply, Vivian Harriman, Director, Public Health Nursing, Rochester-Olmsted County Health Unit, 415 4th St., S. E., Rochester, Minn.

Public Health Nurse—for generalized program in a health department serving rural and urban area. Eligible for certification in Wisconsin. Experience desirable but not necessary. Liberal personnel policies. Salary $3,780-$4,800, plus travel allowance. Apply Director, Eau Claire City-County Health Department, Eau Claire, Wis.

Public Health Nurse III (District Advisory Nurse)—Give guidance and counseling to all public health nurses in a multiple-county area regarding community organization and relationships, program planning, public health nursing technics, records, and reporting. Responsible for inservice education program for local public health nurses and evaluation of nursing services. Salary range $5,688-$6,768, plus travel allowance. B.S. degree with major in public health nursing and three years' generalized experience as a public health nurse. Special requirements: registration or eligibility therefor as a registered nurse in Wisconsin; certification or eligibility for certification as a public health nurse in Wisconsin. Write R. J. Siesen, Personnel Officer, State Board of Health, Madison 2, Wis.

Certified Public Health Nurse—for attractive central Wisconsin city of 14,000. Center of Wisconsin recreation area. Car furnished. Liberal fringe benefits. Salary open. Apply to Marshfield City Board of Health, c/o City Clerk, 112 E. 2nd St., Marshfield, Wis.

Public Health Nurse—for a two-nurse city health department. Good salary, excellent personnel policies including retirement, Social Security and two weeks' vacation after the first year. Generalized program. Modern office. Wisconsin Rapids Board of Health, 111 1st St., North, Wisconsin Rapids, Wis.

Kentucky's Commission for Handicapped Children needs **Social Workers and Public Health Nurses** to expand its services. Kentucky is a good place to live; itinerant clinics are near scenic areas. Liberal retirement, travel, and vacation benefits. Salary is dependent on education and experience. Staff is dedicated. Apply to Marjorie K. Smith, M.D., 1405 East Burnett, Louisville 17, Ky.

Executive Director—for Delaware League for Planned Parenthood. Responsible public relations, education, guidance to directors, and supervision of office and clinic. Medical social work experience helpful but not necessary. Salary commensurate with experience and ability. H. I. Brown, Jr., Planned Parenthood, Inc., 110 East 16th St., Wilmington 1, Del.

Engineers—State Department of Health. Two responsible positions for trained and experienced sanitary engineers. Starting salary for one position is $626 per month, for the other $541 per month. Apply Arizona Merit System, Capitol Bldg., Phoenix, Ariz.

Senior Sanitary Engineer—Salary range $7,344-$8,940. Qualifications include engineering degree with at least six years' experience, two years of which shall have been in sanitary engineering; a master's degree may be substituted for one year of the required experience. Paid vacation, sick leave, holidays and retirement plan. Excellent opportunities for security and advancement in an expanding program and research projects in a new modern building with fully equipped laboratories. Write Merit System Council, Kentucky State Department of Health, 275 East Main St., Frankfort, Ky.

Public Health Engineers—State-wide stream pollution control program. Salaries $480-$920. Bachelor's degree in engineering required. Starting salary dependent upon qualifications and experience. Apply State Board of Health, Capitol Station, Helena, Mont.

Industrial Hygiene Engineer—Assist in administering industrial hygiene services on a state-wide basis. Bachelor's degree in en-

gineering, professional engineer license, and considerable experience in industrial hygiene necessary. Monthly salary range $660-$785. Civil service, vacation, sick leave, excellent comprehensive retirement system. Travel with expenses paid. Write to H. G. Bourne, Jr., Division of Industrial Hygiene, Ohio Department of Health, Room 306, Ohio Departments Bldg., Columbus 15, Ohio.

Professional Engineer—To assist in the development and administration of an expanded air pollution control program on a state-wide basis. Requirements: Academic degree in engineering, registered professional engineer, considerable experience in industrial hygiene and/or air pollution. Salary range $7,920-$9,420. Employee benefits: civil service appointment, excellent retirement system, sick leave, paid vacation, and travel expenses. Address inquiry to H. G. Bourne, Jr., Ohio Department of Health, Room 306, Ohio Departments Bldg., Columbus 15, Ohio.

Maricopa County Health Department will establish a new public health laboratory program and will have openings next fall for a **Laboratory Director and Two Public Health Microbiologists.** Specifications and salary ranges now being established. For additional information write J. Rex James, 116 South 12th Ave., Phoenix, Ariz.

Serologist-Bacteriologist I—State of Nevada. Salary $401-$487; appointment may be above entrance level. College degree in bacteriology or related science and one year experience in a public health or similar laboratory, or an equivalent combination of education and experience. Vacancy in Reno. Apply State Personnel Department, Carson City, Nev.

Maricopa County Health Department has an opening for a **Public Health Statistician** to plan, organize and direct a new program of public health statistics, including registration. Requirements include a master's degree in public health or statistics and three years' experience in public health statistical work, or any comparable combination of education and experience. Salary range $581-$707 per month, with starting salary determined individually. Routine fringe benefits plus opportunities to live where most people hope to retire. If interested, wire collect to J. Rex James, 116 South 12th Ave., Phoenix, Ariz., for additional information.

Public Health Analyst—City of Long Beach Health Department. Salary range $439-$537. Starting salary dependent upon background. Social Security, city-paid health insurance, retirement plan, 12 days' sick leave and 12 days' vacation yearly. Education equivalent to graduation from a recognized four-year college or university, including at least six semester units in statistics. Apply to I. D. Litwack, M.D., Health Officer, 2655 Pine Ave., Long Beach, Calif.

Public Health Statistician—Background in biostatistics and/or sociology, and writing ability. To assist in preparation of monthly statistical bulletin. Excellent opportunity. Salary range $6,000-$7,000, depending upon qualifications. Liberal fringe benefits. Apply to Monroe Lerner, Health Information Foundation, 420 Lexington Ave., New York 17, N. Y.

Chief Division of Food and Sanitation—in health department of progressive midwest city of 65,000. Responsible for slaughterhouse regulations, meat and milk inspection, and environmental sanitation. D.V.M. degree and public health experience required. Salary range $7,308-$8,508. Retirement plan and Social Security, hospitalization and liberal sick leave, and vacation benefits. Write Supervisor of Personnel, Room 1, City Hall, Kenosha, Wis.

Sanitarian—Generalized county environmental health program. Bachelor's degree in sanitary science or public health, or bachelor's degree with supplemental training. Experience desirable. Liberal travel allowance; paid medical, surgical, and life insurance. Salary $4,750 with yearly increments. Opportunity for training and advancement. Public Health Coordinator, Old Court House, Cape May Court House, N. J.

Public Health Educator III (School Health)—Initiate and develop school-community health education programs in a multi-county district. Desirable qualifications: M.P.H. degree, plus two years' experience in health education; sound working knowledge of principles of education and methods of teaching. Salary starts at $6,048; maximum $7,188. Travel allowance, vacation, sick leave, retirement, and group insurance plans. Write Dr. Amy L. Hunter, Director, Bureau of Maternal and Child Health, Wisconsin State Board of Health, Madison 2, Wis.

Public Health Educator III (Dental Hygienist)—Assist in developing dental health programs for preschool and adult groups in a several county area. Coordinate dental health education activities with over-all health education program. College gradua-

tion, a year of graduate training in an accredited school of public health, and two years' experience. Licensure or eligibility for licensure to practice dental hygiene in Wisconsin essential. Salary starts at $6,048; maximum $7,188. Civil service, vacation, sick leave, Social Security, and retirement benefits. Write R. J. Siesen, Personnel Officer, State Board of Health, 400 State Office Bldg., Madison 2, Wis.

POSITIONS WANTED

On Box Numbers, Address APHA at 1790 Broadway, New York 19, N Y.

General Public Health Administration or Community Health Service Program Development—Six years' diversified experience in public health education, media development, school health services, accident prevention, development and administration of poison control services; liaison experience in public health and industrial hygiene. M.A., M.P.H., and Ph.D. Male, age 33, married. Desire position in general administration, consultant, local health service coordination. **Box C-53,** Employment Service, APHA.

Biostatistician—M.A., University of California School of Public Health. Knowledge of IBM data processing and IBM 650 programing. Desires position with opportunity for advancement in medical research or public health anywhere in the United States. Miss Jane Whitner, International House, University of California, Berkeley 4, Calif.

Commercial Advertisements

All communications on the following commercial advertisements should be sent to Burneice Larson, Chairman, Medical Bureau, Inc., Suite 605, 900 North Michigan Avenue, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

(a) Internist, background of occupational, tropical or preventive medicine; elaborate executive health program; medical processing overseas personnel, dispensary services; excellent opportunity in medical administration also if desired; $20,000, West Coast. (b) Woman M.D., maternal and child health; foreign appointment; well renowned American industry; all air-conditioned facilities. (c) M.D. health commissioner, near leading midwestern city; to $17,000. (d) Nurse director, VNA, well established program, university city, N. Y., top salary. (e) Public health nursing foreign assignment, work with Americans overseas, Latin Americas; $5,000-$11,000. (f) Public health nurse instructor, university appointment; $600 month, academic year, South; also chairman of department, Middle West, top salary.

SITUATIONS WANTED

(a) Medical director, national health organization; 20 years' experience in development of health procedures, administration, research. (b) Public health nurse administrator, B.S., M.A. public health, Columbia University; five years city-county health department; seven years director, community health center.

BOOK REVIEWS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

AIR POLLUTION CONTROL—By W. L. Faith. New York, N. Y.: Wiley (440 Fourth Ave.), 1959. 259 pp. Price, $8.50.

Air pollution as a defect of the environment is only beginning to be recognized as having public health significance. Environmental sanitation personnel in local health departments, particularly, are being confronted with this problem. There has been need for a comprehensive treatment of the subject suitable especially for use by individuals who are concerned with the problem but are not specialists in that field.

The nine chapters, beginning with a general statement of the air pollution problem including some historical notes, also cover some of the more important aspects of air pollution such as meteorology; smoke, dusts, fumes, and mists; gases; odors; automobile exhaust; the air pollution survey; and legal aspects. The material contained in each of these chapters is current, and there is a judicious forecasting of probable developments, such as in the section on the control of auto exhausts. There is a generous listing of references with each chapter, including not only the standard and recognized sources of more technical information, but also the pertinent technical literature up to the date of publication. An appendix contains a useful list of conversion factors for air pollution measurements, and the index is sufficiently detailed.

No text of such modest dimensions, nor even one many times its size, could hope to provide complete treatment of the many facets of air pollution. This book, however, provides a commendable beginning which should serve as an excellent introduction to the subject for the staffs of local health departments and other agencies of communities contemplating an evaluation of the air pollution problem and the initiation of control efforts. By itself, it will answer many of the questions which are raised by the layman concerning air pollution, and it will provide guidance as to whether more intensive air pollution control efforts are required. FRANK TETZLAFF

CONTROL OF COMMUNICABLE DISEASES IN MAN (9th ed.)—An Official Report of the American Public Health Association. New York, N. Y.: The Association (1790 Broadway), 1960. 235 pp. Paper edition $1.00, cloth edition, $2.50.

This ninth edition adheres to the original purpose of the Health Officer's Section of the APHA—"to aid in formulating standard regulations for administrative control of communicable diseases for which notification was required by state and municipal health authorities of the U.S." Since 1917 when the first issue was published, each report has given more coverage to global infections, and the content of this ninth volume but emphasizes the interrelated problems of communicable disease control among the countries of the world.

As in earlier editions, the terms are first defined. Each disease is briefly identified with regard to clinical nature, laboratory diagnosis, and differentiation of allied or related conditions. Principles of control are stressed rather than specific measures that may of necessity vary with local conditions. Methods of control are described under the well established measures of Prevention; Control of Patient, Contacts, and the Immediate Environment; Epidemic; and International.

Some new diseases are included and

some are classified differently. The common cold, for instance, had an identity of its own in the index of the eighth edition. It is now to be found as item D under the new grouping entitled "Upper Respiratory Disease, Acute."

"Staphylococcal Infection: (a) Impetigo Contagiosa and (b) General Staphylococcal" is a ninth edition new classification. No worker in the entire health field should fail to review the principles of control of this infection of such current significance.

The general layout in specific type used in this issue makes for easier reading. Section headings are in bold type as opposed to italics in the previous issue. This ninth edition is an indispensable manual for ready reference by all health workers since, as individuals or members of groups, each worker has responsibility of a kind for control of communicable disease.

MARION W. SHEAHAN

VIRUS HUNTERS—By Greer Williams. New York, N. Y.: Alfred A. Knopf (501 Madison Ave.), 1959. 503 pp. Price, $5.95.

The author, a veteran newspaper and popular magazine medical writer and public relations consultant to several medical organizations, presents the detailed and dramatic story of virology from its beginnings. This most interesting and enlightening book on the lives and work of the pioneers in this major new facet of medical development is based on a monumental amount of research. Much of this was obtained through personal contact.

It is very readable, at least for the partially informed, and rather light or breezy in tone in spots. Details are not always as well organized as they might be for peak clarity, but the information is almost invariably to be found in its pages. Mr. Williams introduces us to the possible role of viruses in cancer, the relationship of viruses to genes, and the basic connection with the very nature of life itself.

This book is a "must" for those who seek a pleasant, human, factual, and informative acquaintance with this most complex area of modern medical research. A selected reading list on virology and related sciences is included, along with recommendations on keeping abreast of current developments in the field.

JOSEPH MOLNER

AMERICAN HANDBOOK OF PSYCHIATRY—Edited by Silvano Arieti. New York, N. Y.: Basic Books (59 Fourth Ave.), 1959. (2 volumes), 2,098 pp. Price, $25.00.

The rapid expansion of psychiatry over the past two decades, both as a medical specialty and as a component of interdisciplinary activity, has been accompanied by a flood of publications. As a result it has become difficult, if not impossible, for those whose professional concerns require them to have some perspective and understanding in this area to achieve these aims. Aid is now at hand in the two massive volumes reviewed here. This encyclopedia is remarkably successful in providing a clearly organized presentation of the various facets of modern psychiatry.

In view of the fact that 111 authors have contributed to this work, the editor and his associates are to be congratulated on achieving a well balanced presentation. The first two chapters deal with the history of psychiatry in Europe and America up to the middle of this century. The exposition of the multifarious concepts, problems, technics, and trends takes into account varying points of view, those that are opposed as well as those that agree. For example, instinct in human behavior and nonbiologic aspects of behavior are discussed in successive chapters.

The scope of this encyclopedia may be illustrated by the fact that the clinical subjects are accompanied by chapters

on a variety of other fields and subjects having some connection with psychiatry. Among these are philosophy, religion, law, education, social science, nursing, and hospital administration.

Within the confines of this review, it is not possible to deal with details. One can, however, recommend this work as a source for all public health workers who require information on mental health and illness. It should certainly be in the libraries of schools of public health, nursing, social work, and educational institutions for related professional groups. Certainly health departments may wish to consider this reference work for their library shelves. The "Handbook" is made useful for reference purposes by the bibliography following each chapter and by the exhaustive index which covers more than 100 pages in three columns.

GEORGE ROSEN

AMERICAN UNIVERSITIES AND FEDERAL RESEARCH—By Charles V. Kidd with a foreword by Paul E. Klopsteg. Cambridge, Mass.: Belknap Press of Harvard University Press, 1959. 272 pp. Price, $6.00.

In this election year, Congress has been asked to vote $8.391 billion for federal research and development—6 per cent over fiscal 1960 and 25 per cent above 1959. Fellowships, training, and other support of education would add $223 million. This intrepid total is over 100 times the 1940 figure. Since a substantial segment of this research dollar goes to universities, and since such funds have become important features of university income, Dr. Kidd's examination of government-academic relationships in this sphere is most welcome.

Dr. Kidd is now director of research planning at the National Institutes of Health and has long been associated with government agencies. But his exploration of all pertinent issues, documented by National Science Foundation studies, his own inquiries by questionnaires to deans and heads of medical departments, and personal visits here and abroad is balanced, objective, and forthright. He is equally aware of the governmental bureaucracy which has grown up to manage research and the changes in university structure, as well as strains between research and the primary functions of creation and diffusion of knowledge which have developed in some universities.

On balance, however, he feels that federal financing of the bulk of university research (about half in medicine and health) has been beneficial. Although there are critical dislocations in some areas, notably the questionable proportion of research to teaching and community service, he believes that pressures for such growth are exerted by the general cultural emphasis on research today, and are not directly traceable to Washington money. The flexibility and variety of structures created to grant and accept funds attest to the viability of universities generally and to the responsibility of the new class of federal scientist-administrators who consider problems of federal purpose, allocation, university needs, and the interrelationships of education, service and research. In great part, this basically successful enterprise is due to the partnership between government and the scientific community. The establishment of competent advisory and review groups composed of leaders and scholars whose judgment is respected assures representation of differing interests.

Here is a volume for the active reader, presenting conclusions and valuable judgment, but also encouraging independent analysis. For the researcher who has dealt with government or contemplates a foray for funds, there is stimulus as well as satisfaction in the realization that there are officials like Kidd in high places who are intellectually and emotionally aware of indi-

vidual desires, university needs and public requirements.

IRVING LADIMER

CHARACTER DISORDERS IN PARENTS OF DELINQUENTS—By Beatrice S. Reiner and Irving Kaufmann. New York, N. Y.: Family Service Association of America (215 Park Ave., South), 1959. 179 pp. Price, $2.75.

This monograph reporting the findings and classification scheme from an investigation focusing on the delineation of the specific characteristics of the character disorders found in the parents of delinquents possesses some excellent features. Its description of the criteria for classification is detailed and provides a rich source of data for workers in this difficult field. Its discussion of the nature of the treatment process, with different types of character disorders classified in terms of an orthodox psychoanalytic scheme, is clearly outlined and appears to have made a genuine contribution to the differential therapy of a multiplicity of difficult problems.

Although the reviewer has some serious questions about the advantages gained from employing the particular classificatory scheme when the client's mode of functioning is so well presented, it may have been helpful to therapists trained in a specific theoretical orientation. The only serious objection to the orientation is the rather naive acceptance of the concept that there is a one-to-one relationship between injury in a particular developmental phase and the forms of adult disturbance. This is a hypothesis not an established fact, and the difficulty in its validation has been described by Prugh* in his discussion of the relationship between toilet training procedures and adult anal symptomatology.

CHARLES E. ORBACH

* Prugh, Dane G. Childhood Experience and Colonic Disorder in the Colon: Its Normal and Abnormal Physiology and Therapeutics. Roy W. Minor, Editor. Annals of the New York Academy of Sciences. Vol. 58, Art. 4 (July 15), 1954.

PSYCHIATRY AND THE PUBLIC HEALTH—By G. R. Hargreaves. London, England: Oxford University Press, 1958. 118 pp. Price, $3.00.

The Health Clark Lectures which Professor Hargreaves of Leeds delivered in 1957 were devoted to the relations of psychiatry to the public health. While addressed to a British audience and based largely on British experience, there are numerous references to developments in the United States. Furthermore, the problems and questions taken up by Professor Hargreaves will strike a responsive chord among American public health workers concerned with community mental health.

Beginning with an analysis of the origins of psychiatry, the author then discusses the relations of psychiatry to society, medical administration, the family doctor, and public health practice. Under each of these headings, many pertinent points are made, each of which could be the starting point of a distinct chapter. A few will be mentioned here. In the analysis of origins, for example, the point is made that psychiatry as we know it today is based on the confluence of several distinct sources: the handling of the psychoses; the treatment of the psychoneuroses; the care of the severely mentally defective; the treatment of the juvenile delinquent as a diagnostic and therapeutic problem; the problem of the psychosomatic disorders; and finally, the mental hygiene movement. A pertinent feature of most of these fields is the small part played in their development by medical schools, teaching hospitals, and the general stream of clinical medicine. The initial steps in their development were taken by private individuals and groups, and financial support has come largely from government. In these terms, the evolution of psychiatry is closer to that of public health than to various branches of clinical medicine.

This is true as well of the significance

of administration for psychiatry. Medical administration provides a large element of the social context within which psychiatry has developed and is practiced, and without which it cannot be understood. Thus, "moral treatment" and "no restraint," to which we have now in some measure returned, represent a philosophy of administration and treatment.

The major point is that psychiatry in the sense indicated above, like public health, has been and must be concerned at one point or another with social action. Until recently this was not true of clinical medicine; but as the increasingly complex problems of an urban, industrialized society infringe on the practitioner, he necessarily takes cognizance of them and alters his role to meet the new situation. Professor Hargreaves emphasizes the role of the general practitioner in dealing with the crisis of illness and with the attendant emotional stresses, and discusses how to provide the medical student with the necessary knowledge and skills. Finally, he underscores the challenge to the official health agency in dealing with the mental health problems of the community and the need for public health training to meet the challenge.

The style is clear and to the point. The book reads easily and is a must for every health officer, public health nurse, psychiatrist, social worker, and family doctor who cannot fail to gain a better understanding of the mental health problems of the community.

GEORGE ROSEN

INTERNATIONAL WORK IN LEPROSY 1948-1959—World Health Organization. Geneva, Switzerland: 1960. 39 pp. Price, $.30.

This concise, well illustrated publication of 39 pages reviews the current status of leprosy throughout the world. It brings together and attempts to reconcile the various classifications of leprosy promulgated by the several international congresses. In doing so, it recognizes that the clinical manifestations of leprosy vary with its geographical distribution.

The current status of the epidemiology, diagnosis, treatment, and control of leprosy is summarized. It takes a constructive attitude concerning the need for isolating leprosy patients in view of the effectiveness of the new chemotherapeutic agents and the failure to secure patients' cooperation when isolation is compulsory. Health officers in general will agree with the statement that the leprosy control program must be a part of the general public health program.

This informative summary is recommended to public health workers and clinicians who wish to bring themselves up to date on leprosy, and it is excellent reading for medical students.

HAROLD W. BROWN

HEALTH EDUCATION MONOGRAPHS—Oakland, Calif.: Society of Public Health Educators (121 East 11th St.), 1959. No. 4—38 pp., No. 5—28 pp., No. 6—40 pp. Price, $1.00 each.

These three significant monographs make a total of four published by the Society in 1959. They add to the ever-growing knowledge in functional health education, and should be read not only by health educators, but by public health administrators and program planners.

In Monograph Number 4, Dr. William Griffiths, of the University of California, presents an analysis of attitudes of health workers in Iran, India, Ceylon, Burma, Thailand, and The Philippines toward community development programs being caried out in their respective countries. These programs were under the auspices of the International Cooperation Administration.

Monograph Number 5 has two parts. Dr. Cora DuBois, of Harvard University and Radcliffe College, reconciles the theories of anthropologists, sociologists,

and psychologists as they relate to sociocultural change. She makes a particular plea for planners of public health programs to include psychosocial and sociocultural processes in plans for such programs.

Also in Monograph Number 5, Dr. Kenneth D. Benne, Boston University, gives an appraisal of operational research in health education. He considers the key problems in extending such operational research in health education settings, then emphasizes the special opportunity for health educators in research.

The last Monograph, Number 6, concerns motivation. Dr. Richard S. Lazarus and Dr. William Kornhauser, both of the University of California, and Dr. Edmund H. Volkart, Stanford University, consider Basic Psychological Issues, Power and Participation in the Local Community, and Motivation in Small Groups. These contributions were part of a seminar on motivation arranged by the Northern California members of the Society of Public Health Educators.

MOREY R. FIELDS

FOODS WITHOUT FADS. A COMMON-SENSE GUIDE TO NUTRITION—By E. W. McHenry. Philadelphia, Pa.: J. B. Lippincott (East Washington Square), 1960. 159 pp. Price, $3.50.

Written virtually in basic English and intended for lay readers, this book's simplicity is matched only by its good sense. It aims for breadth rather than extreme depth and treats briefly of a whole span of topics, including principles of nutrition, food choice, meal planning, weight control, nutrition needs along the life-cycle, vitamins, food fads, and the relationship of diet to health and disease.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ABOUT ALL OF US (teacher's edition). Book Six of the Basic Health and Safety Program. Helen Shacter, et al. Chicago, Ill.: Scott, Foresman & Co., 1960. 288 pp.

ADMINISTRATION OF PUBLIC HEALTH SERVICES. Ruth B. Freeman and Edward M. Holmes, Jr. Philadelphia, Pa.: Saunders, 1960. 507 pp. Price, $6.75.

ATTENUATED INFECTION—THE GERM THEORY IN CONTEMPORARY PERSPECTIVE. Harold J. Simon. Philadelphia, Pa.: Lippincott, 1960. 349 pp. Price, $10.00.

BRITISH NATIONAL FORMULARY 1960 (alternative edition). The British Medical Association and the Pharmaceutical Society of Great Britain. Philadelphia, Pa.: Rittenhouse Bookstore, 1960. Price, $1.73 or $2.25 interleaved.

CHRONIC DISEASE AND REHABILITATION. A Program Guide for State and Local Health Agencies. New York, N. Y.: American Public Health Association, 1960. 116 pp. Price, $2.50.

CLASSICS OF MEDICINE AND SURGERY. Collected by C. N. B. Camac. New York, N. Y.: Dover Publications, 1960. 435 pp. Price, $2.25.

COMMONSENSE BOOK OF DRINKING, THE. Leon D. Adams. New York, N. Y.: David McKay, 1960. 210 pp. Price, $3.95.

COMPREHENSIVE COMMUNITY PLAN FOR MEETING THE PROBLEMS OF CHRONIC ILLNESS, SUMMARY OF. Chicago, Ill.: Central Service for the Chronically Ill of the Institute of Medicine in Chicago, 1959. 78 pp. Price, $1.00.

DECISION MAKING IN HOSPITAL ADMINISTRATION AND MEDICAL CARE. A Casebook. James A. Hamilton. Minneapolis, Minn.: University of Minnesota Press, 1960. 710 pp. Price, $10.50.

DIETARY ASPECTS OF CARDIOVASCULAR DISEASES—SELECTED REFERENCES. Washington, D. C.: Heart Disease Control Program, USPHS, 1960. Free.

EFFECTIVE REPORT WRITING—FOR BUSINESS, INDUSTRY AND GOVERNMENT. Norman B. Sigband. New York, N. Y.: Harper & Brothers, 1960. 688 pp. Price, $6.75.

EPIDEMIOLOGY AND MENTAL ILLNESS. Monograph Series No. 6—Joint Commission on Mental Illness and Health. Richard J. Plunkett and John E. Gordon. New York, N. Y.: Basic Books, 1960. 126 pp. Price, $2.75.

EUROPEAN SEMINAR ON SHELTERED EMPLOYMENT. Report on a meeting held at The Hague, The Netherlands, during August 31 through September 8, 1959. New York, N. Y.: International Society for the Welfare of Cripples, 1960. 170 pp. Price, $1.50.

EXPERIMENTS AND OBSERVATIONS ON THE GASTRIC JUICE AND THE PHYSIOLOGY OF DIGESTION. William Beaumont. New York, N. Y.: Dover Publications, 1960. 280 pp. Price, $1.50.

FEDERAL GOVERNMENT AND METROPOLITAN AREAS. Robert H. Connery and Richard H. Leach. Cambridge, Mass.: Harvard University Press, 1960. 275 pp. Price, $4.75.

FOURTH HEALTH CONFERENCE FOR PUBLIC OFFICIALS. University of Michigan School of Public Health. Ann Arbor, Mich.: University of Michigan, Publications Distribution Service, 1956. Price, $1.00.

GOOD HEALTH—PERSONAL AND COMMUNITY. Benjamin F. Miller and Zelman Miller. Philadelphia, Pa.: Saunders, 1960. 546 pp. Price, $6.00.

GOVERNING NEW YORK CITY—POLITICS IN THE METROPOLIS. Wallace S. Sayre and Herbert Kaufman. New York, N. Y.: Russell Sage Foundation, 1960. 815 pp. Price, $8.50.

GROUP DYNAMICS—RESEARCH AND THEORY (2nd ed.). Edited by Dorwin Cartwright and Alvin Zander. Evanston, Ill.: Row, Peterson, 1960. 826 pp. Price, $7.25.

GUIDE TO COMMUNITIES IN THE ESTABLISHMENT AND OPERATION OF PSYCHIATRIC CLINICS. New York State Division of Community Services and Community Mental Health Services. Albany, N. Y.: State Department of Mental Hygiene, 1959. 309 pp. Price, $2.00.

HEALTH SUPERVISION OF CHILDREN. University of Michigan, School of Public Health. Ann Arbor, Mich.: University of Michigan, The Continued Education Service, 1959. 90 pp. Price, $2.00.

HEALTHY CHILD, THE. Edited by Harold C. Stuart and Dane G. Prugh. Cambridge, Mass.: Harvard University Press, 1960. 507 pp. Price, $10.00.

HOW TO PROVIDE HOUSING WHICH THE ELDERLY CAN AFFORD AND HOUSING REQUIREMENTS OF THE AGED—A Study of Design Criteria. Albany, N. Y.: State Division of Housing, 1958. Reprint, April, 1960.

INDUSTRIAL WATER CONSERVATION. University of Michigan, School of Public Health. Ann Arbor, Mich.: The University, Continued Education Service, 1959. 115 pp. Price, $3.00.

LEGAL ASPECTS OF PUBLIC HEALTH. University of Michigan, School of Public Health. Ann Arbor, Mich.: The University, Continued Education Service, 1959. 69 pp. Price, $2.00.

MARYLAND CHILD GROWTH AND DEVELOPMENT INSTITUTE. June 1-5, 1959. Baltimore, Md.: State Department of Health, 1960. 194 pp.

NEUROPHARMACOLOGY—TRANSACTIONS OF THE FIFTH CONFERENCE MAY 27-29, 1959. Harold A. Abramson. New York, N. Y.: Josiah Macy, Jr. Foundation, 1960. 251 pp. Price, $6.00.

OUR OBSTETRIC HERITAGE. The Story of Safe Childbirth. Herbert Thoms. Hamden, Conn.: The Shoe String Press, 1960. 164 pp. Price, $4.75.

PAEDIATRIC TUTORIALS—THE NEWLY BORN INFANT. Andrew Bogdan. Rochester, N. Y.: University Book Store, University of Rochester, 1959. 32 pp. Price, $.75.

POISONS AND T. S. A. GUIDE (6th ed.). Published by direction of the Council of the Pharmaceutical Society of Great Britain. Philadelphia, Pa.: Rittenhouse Bookstore, 1960. 75 pp. Price, $1.50.

POPULATION TRENDS IN EASTERN EUROPE, THE USSR AND MAINLAND CHINA. Proceedings of the 36th Annual Conference, November 4-5, 1959. New York, N. Y.: Milbank Memorial Fund, 1960. 336 pp. Price, $2.00.

PRACTICE OF DENTAL PUBLIC HEALTH (revised). Proceedings of the Fourth Workshop on Dental Health, University of Michigan, April 2-6, 1956. Ann Arbor, Mich.: The University, Continued Education Service, 1960. 198 pp. Price, $3.00.

PREVENTION AND MANAGEMENT OF HANDICAPPING CONDITIONS IN INFANCY AND CHILDHOOD. University of Michigan School of Public Health and the University of Minnesota School of Public Health. Ann Arbor, Mich.: The University, Continued Education Service, 1960. 250 pp. Limited free distribution.

PSYCHOLOGY OF DEAFNESS. Edna Simon Levine. New York, N. Y.: Columbia University Press, 1960. 383 pp. Price, $7.50.

RADIOACTIVITY FOR PHARMACEUTICAL AND ALLIED RESEARCH LABORATORIES. Edited by Abraham Edelmann. New York, N. Y.: Academic Press, 1960. 171 pp. Price, $6.00.

RIVER BASIN ADMINISTRATION AND THE DELAWARE. Roscoe C. Martin, et al. Syracuse, N. Y.: Syracuse University Press, 1960. 390 pp. Price, $5.00.

SECOND INSERVICE TRAINING COURSE FOR PEST CONTROL OPERATORS—INSECT RESISTANCE. University of Michigan, School of Public Health. Ann Arbor, Mich.: The University, Continued Education Service, 1957. 46 pp. Price, $1.00.

SOCIAL DRINKING—HOW TO ENJOY DRINKING WITHOUT BEING HURT BY IT. Giorgio Lolli. Cleveland, Ohio: World Publishing, 1960. 317 pp. Price, $4.50.

SOCIAL WORKERS' PERCEPTIONS OF CLIENTS. Edgar F. Borgatta; David Fanshel; and Henry J. Meyer. New York, N. Y.: Russell Sage Foundation, 1960. 92 pp. Price, $2.00.

SOURCE BOOK OF MEDICAL HISTORY. Compiled with Notes by Logan Clendening. New York, N. Y.: Dover Publications, 1960. 685 pp. Price, $2.75.

SURGERY AS A HUMAN EXPERIENCE. James L. Titchener and Maurice Levine. New York, N. Y.: Oxford University Press, 1960. 285 pp. Price, $6.00.

WATER FILTRATION. University of Michigan, School of Public Health. Ann Arbor, Mich.: The University, Continued Education Service, 1959. 131 pp. Price, $3.00.

WATER FOR NEW YORK—A STUDY IN STATE ADMINISTRATION OF WATER RESOURCES. Roscoe C. Martin. Syracuse, N. Y.: Syracuse University Press, 1960. 264 pp. Price, $5.00.

WATER SUPPLY AND SEWERAGE (4th ed.). Ernest W. Steel. New York, N. Y.: McGraw-Hill, 1960. 655 pp. Price, $11.00.

WESTERN INTELLECTUAL TRADITION — FROM LEONARDO TO HEGEL. J. Bronowski and Bruce Maxlish. New York, N. Y.: Harper, 1960. 522 pp. Price, $7.50.

WHY BIRTH CONTROL IS NECESSARY — A MODERN TESTAMENT. Hiro. New York, N. Y.: Pageant Press, 1960. 83 pp. Price, $2.75.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

Raymond S. Patterson, Ph.D., F.A.P.H.A.

Practice vs. Principle—Exemplary codes of ethics, standard ordinances, and minimum standards of construction all have been worked out for the improvement of community sanitation. Trouble is, too few municipalities have adopted them and put them seriously to work, says this knowledgeable director of plant sanitation.

BARRON, J. L. What Is Wrong with Official Regulation of Food Sanitation? Mod. San. 12,5:15 (May), 1960.

The Stuff We Drink!—Recycling of sewage into drinking water in cases of dire necessity has been undertaken, as you know. Here is one comment on that practice: "Modern sewage treatment processes are designed to produce an effluent that will be easily assimilated by the receiving body of water; they are not intended to produce a water suitable as a source of municipal water supply. Modern water treatment proc-

esses are designed to treat a moderately contaminated and turbid water so that it may be safely drunk; they are not intended to treat raw water approaching sewage plant effluents in quality. A combination of current sewage and water treatment processes should, therefore, not be considered adequate to convert sewage into safe drinking water."

BERGER, B. B. Public Health Aspects of Water Reuse for Potable Supply. J. Am. Water Works A. 52,5:599 (May), 1960.

A Good Word for Soap—This you may be glad to know about. Though the skin may be a little less able to sterilize itself after soap is used, and the normal acidity of the skin may be somewhat reduced, at least the irritant effect of soap tends to be overestimated. One is thus reassured: Soap remains still a pretty good thing for washing recent contamination off the skin's surface.

BETTLEY, F. R. Some Effects of Soap on the Skin. Brit. M. J. 5187:1675 (June 4), 1960.

Barrier Passers—Are you at all curious about the possible presence of nematodes in the water supply for your bailiwick? In the proposed testing procedure, gallon samples are run through membrane filters and the washings from the membranes are examined microscopically in a Sedgwick-Rafter counting cell. If there, the nematodes are readily identified.

CHANG, S. L., et al. Proposed Method for Examination of Water for Free Living Nematodes. J. Am. Water Works A. 52,6:695 (June), 1960.

Lung Cancer Summed Up—No less than 267 references, all devoted to the relationships of cigarette smoking and lung cancer are appended to this inclusive (25-page) review of the pros and cons of this debate. The conclusion of this review begins quite understandably in this wise: "The scientist is traditionally reticent about interpreting facts, but most physicians and public health officers are finding it quite reasonable to accept the belief that smoking is a major environmental causative factor in human epidermoid lung cancer. The evidence in favor of such a relationship is extraordinarily abundant and consistent. The several alternative suggestions are largely speculative and consistency among them is lacking."

DAVIES, D. F. A Review of the Evidence on the Relationship Between Smoking and Lung Cancer. J. Chronic Dis. 11,6:579 (June), 1960.

Forced Treatment—Does compulsory hospitalization of infectious but recalcitrant tuberculous patients remain a sore spot in present-day control programs? If so, this (Br.) discussion of successful compulsory treatment may have meaning on this side of the water, too. Seven instances are discussed. Three uncooperative patients finally settled down without unduly upsetting their neighbors. Three became very good patients without much fuss, and the seventh was average good.

DAVIES, J. B. M., and HOWELL, F. R. Compulsory Admission to Hospital in Pulmonary Tuberculosis. M. Officer, 103,20:281 (May 13), 1960.

Safer Rabies Vaccination—Comparative values of Semple vaccine and duck-embryo vaccine were studied in the antirabies clinics of the New York City Department of Health. Duck-embryo vaccine was found to stimulate earlier the production of antibodies, though both ultimately established about the same level of antibody titers. Encephalomyelitis did not occur after duck-egg vaccination but did, in two patients, receiving the other vaccine. So duck-egg vaccine is recommended.

GREENBURG, M., and CHILDRESS, J. Vaccination Against Rabies With Duck-Embryo and Semple Vaccines. J.A.M.A. 173,4:77 (May 28), 1960.

Food Poisoning Again—Another, though quite unusual, example of the dangers of processing great quantities of food under unsuitable conditions and with inadequate facilities, is found in this account of an outbreak of food poisoning on a special train carrying 450 people to a conference. The great quantity of food called for could not be safely refrigerated after preliminary cooking and the to-be-expected outbreak resulted—this time it was a C. perfringens poisoning.

HART, C. J., et al. A Food Poisoning Outlook Aboard a Common Carrier. Pub. Health Rep. 75,6:527 (June), 1960.

Filling the Shoes of Peyton Rous—Who could help but be heartened by this account of the progress in virus-cancer research over the past half century? Dedicated scientists over the world assure us that knowledge in this once neglected and complex line of research will surely and steadily increase. Quite incidentally the paper itself is a brillant piece of scientific reporting, and as such might well be studied regardless of its content.

HELLER, J. R. Research on Cancer Viruses. Pub. Health Rep. 75,6:501 (June), 1960.

Multiple Puncture Method—Described here is the "Heaf gun." It stabs six tiny needles into the skin (to a depth of 1 or 2 mm as desired). It can be used to administer a tuberculin test, and, abroad, it has been used for intradermal injection of BCG. You may be hearing more about this "gun" in the future.

ANDERSON, S. R., and SMITH, M. H. D. The Heaf Multiple Puncture Tuberculin Test. Am. J. Dis. Child. 99,6:78 (June), 1960; and, HOPPER, J. M. H. The Multiple Puncture Method of BCG Vaccination in 13-Year-Old Children. M. Officer 103,22:311 (May 27), 1960.

Counting Benefits — Aberdeen's (Scotland) MOH reviews the accumulating benefits of four years of health guidance by family health visitors. He asks, is the association between health education and community health one of cause and effect or could there be some other unspecified causative factor? His search for the answer will be of interest to any administrator this side of the Atlantic who may have any curiosity about true health guidance.

MACQUEEN, I. A. G. Evaluation of a Scheme of Health Education. M. Officer 103,21:295 (May 20), 1960.

Psychology at Work — Says a health officer of the Vancouver district, "If any impression is to be made on the problem of promoting mental health, it must be made by ordinary public health workers—there are not, and never can be, enough psychiatrists and psychologists to do the job. Even the psychiatric social worker should be reserved for major problems, or used as a support for the public health nurse." If you are thinking of doing more than giving lip-service to the cause of mental health then you will want to know about this Vancouver experience.

MOTT, G. A. Mental Hygiene in a Public Health Department. Pub. Health (Br.), 74, 8:283 (May), 1960.

Can We Be Too Persuasive?—In one Canadian city a plebiscite on water fluoridation was held after what would seem to have been a well planned promotional campaign. Both the medical and dental professions were solidly for it. There was no organized opposition, nor was any great quantity of anti-fluoridation material circulated. So the plebiscite was held and "the people" turned the plan down. Why? The probable reasons should be of interest to every one of us.

O'MEARA, B. J. Observations On a Fuoridation Plebiscite. Canad. J. Pub. Health 51,5:207 (May), 1960.

Hospital Staph in the Home—Discussed here are the precautions the public health nurse can take to avoid

spreading hospital-acquired staphylococcal injections through her home care services. Special technics both for nursing care and family care are urgently called for.

PRATT, M. K., et al. A VNA Combats Staph Infection. Nursing Outlook 8,6:310 (June), 1960.

What People Don't Know—In Dundee (Scotland) 250 patients attending a chest clinic were asked what they know about diabetes. Though more than half knew at least one diabetic, their useful knowledge of this disease was slight indeed. A third had read something about it, but to no great purpose. The few who recalled having heard something about it over the radio gained little of practical value for having done so. It would be of interest to know if a similar group of our presumably better health-educated people had any larger store of useful knowledge of the disease.

REID, J. J. A Public Knowledge of Diabetes Mellitus. M. Officer 103,23:325 (June 3), 1960.

Safe Nurseries—Though this discussion of staphylococcus infections in hospital nurseries may be of immediate moment chiefly to administrators of hospital and clinical facilities for newborns, the examination of the many and difficult matters that must be solved before infected nurseries can be considered safe again for further use must be of general interest to all who have any concern whatever for either babies or bacteria.

WHEELER, W. E. Infections and Nursery Problems. Am. J. Dis. Child. 99,6:722 (June), 1960.

If additional information is desired regarding the articles listed in this bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Am. J. Dis. Child. A.M.A. American Journal of Diseases of Children. American Medical Association, Chicago, Ill.

Brit. M. J. (British Medical Journal), British Medical Association House, 19 Tavistock Sq., London, W.C.1, England.

Canad. J. Pub. Health (Canadian Journal of Public Health), 150 College St., Toronto 5, Canada.

J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago, Ill.

J. Am. Water Works A. (Journal of the American Water Works Association), 2 Park Ave., New York 16, N. Y.

J. Chronic Dis. (Journal of Chronic Diseases), C. V. Mosby, 3207 Washington Blvd., St. Louis, Mo.

M. Officer (Medical Officer), Chronical House, 72-78 Fleet St., London, E.C.4, England.

Modern San. (Modern Sanitation), Power Magazines, Inc., 855 Avenue of the Americas, New York 1, N. Y.

Nursing Outlook, American Journal of Nursing Company, 2 Park Ave., New York 16, N. Y.

Pub. Health (Public Health), Society of Medical Officers of Health, Tavistock House, Tavistock Sq., London, W.C.1, England.

Pub. Health Rep. (Public Health Reports), Gov. Ptg. Office, Washington, D. C.

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Health Bastion in the Pacific

The 1958-1959 annual report of the Department of Health for Hawaii covers the transitional period of Hawaii from a territory to a state.

The first eight of its 52 pages are a history of public health in Hawaii, the opening paragraph of which sounds like the beginning of a legend. "Nearly one hundred and twenty-three years ago, two ladies of rank named Kinau and Auhea and an Hawaiian chief named Paki signed an order which, history indicates, was the first public health measure in Hawaii." The ladies were both widows of King Kamehameha and the order required the harbor pilot of Honolulu to "ascertain whether there has been any case of smallpox or other pestilent disease" on board an approaching vessel. If so, the master was to hoist a yellow flag and "give information to the constituted authorities." Their husband himself had died of measles in far-off London. So began the Board of Health in Hawaii.

The rest of the story to the present is well paced and exceptionally readable. It ends with a note—an even stirring one—on Hawaii's geographical importance in the public health world. "Hawaii is the spot where the ships, the planes and the people of East and West meet. Constant surveillance keeps disease from coming into Hawaii—and keeps disease from making its way to our fellow citizens in the West and our fellow men in the East."

Hawaii's special international character is further borne out by the report's list of 39 international health personnel who engaged in work with the Hawaiian health department in fiscal 1959. They came from some dozen countries and territories of the Pacific and Far East (including Pago Pago), sponsored by such organizations as the International Cooperation Administration, World Health Organization, Public Health Service, China Medical Board, the United States Department of State and a Business and Professional Women's Society.

Of all health activities for the year, Richard K. C. Lee, M.D., president of the State Board of Health, singles out for special mention the beginnings of a "mental health program aimed at preventing mental illness as well as integrating mental health in a total health program" and the development of a virus laboratory with the aid of the PHS. "Environmental health continues to be a major concern as Hawaii continues to develop new industries and residential areas."

The report succeeds in maintaining interest and attention with minimal dependence on photographs and other art work. Copies are presumably available, probably in limited quantity, from the Hawaii Department of Health, P. O. Box 3378, Honolulu 1, Hawaii.

HEW "Trends" Now Annual for Public

The Department of Health, Education, and Welfare has for several years experimented with the compilation of statistical trend data as a resource for understanding past developments and for analyzing current and emerging problems regarding the well-being of the people. A product of this effort in 1959 was "Health, Education, and Welfare Trends," an annual intended for executive use within the government. Persons

outside government who were asked to evaluate its contents urged HEW to make future editions of the annual available to the general public. Their suggestions were accepted and the 1960 edition of trends is now on sale (Government Printing Office, Washington 25, D. C.; 50 cents).

In addition to data culled from its own administrative resources, HEW has made extensive use of the concepts and statistical data made available by other departments in the executive branch such as commerce, labor, and agriculture and by the national professional associations of physicians, hospitals, dentists, nurses, and educators.

Background Social and Economic Trends, the first section of statistical tables and charts, is followed by sections devoted to major developments in the fields of health, education, welfare, and vocational rehabilitation. Text is at a minimum.

On the Preventing of RLF

The National Society for the Prevention of Blindness has received a number of inquiries about when the knowledge became generally available to the profession that uncontrolled use of oxygen in the treatment of premature infants might result in retrolental fibroplasia, commonly abbreviated as RLF.

In response, NSPB has produced an annotated bibliography on RLF with references set out in chronological order of appearance in the literature. The first item in the bibliography is the paper of K. Campbell on intensive oxygen therapy as a possible cause of RLF, published in the Medical Journal of Australia in July, 1951. The eighteenth and final item lists an article by Arnall Patz, M.D., published in Pediatrics in March, 1957.

NSPB points out that the bibliography is not complete but that it does give clear indication of the number of articles in the literature available to physicians and hospital administrators for guidance in discharging their duty of instituting and following procedures that will prevent RLF in premature infants.

The bibliography (mimeographed, 5 pages, dated April, 1960) is available without charge, but in limited supply, from NSPB, 1790 Broadway, New York 19, N. Y.

Poisoning

The March, 1960, Statistical Bulletin, Metropolitan Life Insurance Company (available at 1 Madison Avenue, New York 10, N. Y.) details the frequency of accidental poisoning by solids and liquids in the United States for 1956-1957, with the encouraging prefatory note that fatalities from these poisonings have been decreasing in relative frequency—from 11.0 per 1,000,000 population in 1949 to 8.2 in 1957. Of the approximate 1,400 accidental poisoning deaths occurring annually in this country, one fourth are of preschool children; the toll is particularly high between ages one and two. Mortality from this cause is at a minimum during the school ages but rises to a secondary peak at ages 45-64. The bulletin also documents poisoning fatalities by sex and by type of poison.

Since 1957 National Clearinghouse for Poison Control Centers has been conducting an ongoing epidemiologic study of poisoning accidents. According to its April, 1960, bulletin NCPCC receives about 1,800 case reports a month from 106 of the 348 poison control centers in the country. As of December 31, 1958, 15,094 case reports had been submitted, 14,069 of which were classified as accidents. Approximately 90 per cent of these involved children under the age of five. Almost one fourth of all these cases occurred in the age period from 18 to 24 months.

A chart shows the type of product as a percentage of all ingestions among children under five years of age. The major part of this issue describes the treatment of household soap and detergent ingestion. The bulletin is a service of the Accident Prevention Program, Bureau of State Services, PHS, Washington 25, D. C.

The American Medical Association has prepared a card giving pointers on first-aid treatment for poisoning. It is designed to be placed inside a medicine cabinet door for quick reference in emergencies. The card also has a detachable flap which calls for public support of HR 7352, the "Uniform Hazardous Substances Act," now receiving congressional attention. After distributing this first-aid card, AMA published "Hidden Hazards—The Unlabeled Poison Problem," a 21-page booklet also aimed at gaining public support for HR 7352. It includes the Principles for Precautionary Labeling of Hazardous Chemicals, a copy of Bill HR 7352, and a section of questions and answers about the legislation. The card and booklet are free. AMA Committee on Toxicology, 535 North Dearborn Street, Chicago 10, Ill.

Excerpta Medica Foundation, on an annual grant from the pharmaceutical firm of Kinney and Company (Columbus, Ind.) is now publishing current abstracts from the world-wide medical literature in a quarterly called Toxic Episodes in Children. Volume I, Number 1 was issued in March, 1960. To be placed on the mailing list, write Excerpta Medica Foundation, 2 East 103rd Street, New York 29, N. Y.

Midsummer Harvest

A new quarterly, "Compost Science," "will report the technical, scientific and practical developments in the field of large scale composting." The Editorial Board consists primarily of persons concerned with the treatment of municipal and industrial organic wastes. The first issue is dated Spring, 1960. Four dollars a year, $7 for two years, $10 for three years. Rodale Press, Inc., 33 East Minor Street, Emmaus, Pa.

"When Children Must Be Committed" is by Dr. Alfred J. Kahn, published by the Citizens' Committee for Children of New York, Inc., 112 East 19th Street, New York 3, N. Y. ($1). The report deals with needs: a diversified system of facilities for the treatment of delinquent children; programs tailored to specific groups; the development of a rehabilitation philosophy among all personnel levels within institutions; and improved after-care of children released to the community. The report contains an extensive bibliography. It may be read with profit by non-Empire Staters, even though it relates throughout to New York State institutions.

"Report of a Work Conference on Nursing in Long-Term Chronic Disease and Aging" originates from a 1959 conference jointly sponsored by the Division of Nursing Education, Teachers College, Columbia University, and the Chronic Disease Program, Public Health Service. The introduction contributes definitions of the chronically ill patient in five different physical settings: general hospital, chronic disease hospital, nursing home, home for the aged, and patient's home. Part I deals with Nursing Role and Responsibility. Part II is a Philosophy of Nursing Education in this field. Nursing Considerations in Functional Components, Ingestion, Levels of Performance, and Intake of Chronically Ill Patients are outlined in appendixes. The report (League Exchange No. 50) is available from the National League for Nursing, 10 Columbus Circle, New York 19, N. Y.; $1.

"The Hospital Emergency Department," a four-page pamphlet put out by the American Hospital Association, points out that during the last ten years, the "accident" room has become in a real sense an "emergency" department. An increasing variety of diseases, embracing almost every area of clinical medicine, has been presented by a dramatically growing number of patients visiting hospital emergency rooms. The number of patients cared for in emergency rooms during the past decade has increased 400 to 500 per cent over the entire period. The pamphlet, subtitled An Approach for Examining Emergency Service, notes that too little attention has been paid by hospitals to the accompanying problems of organization and facilities and sets forth some of the questions which hospitals, regardless of size, must answer to learn the weaknesses and strengths of their emergency services. Emergency rooms are in some ways the most "public" parts of hospitals. Local health personnel may find that the pamphlet will suggest ways in which they can give support to local hospital administrators in making this service "one of our greatest health assets in patient care, education of personnel and research," as AHA says it can become.

Presumably available at slight or no charge since price is not listed. AHA is at 840 N. Lakeshore Drive, Chicago 11, Ill.

The University of Saskatchewan College of Medicine has produced a new teaching film on artificial respiration, "That They May Live." M. H. Brook, M.D., and A. B. Dobkin, M.D., a professor of anesthesia at the college, supervised the medical aspects of the production. The film demonstrates the use of the direct method by sequences on such incidents as drownings, automobile accidents, plastic bag suffocation, and industrial accidents. Throughout, "the film illustrates how a clear airway is established, why mouth to mouth breathing is superior, and how it is best performed."

Available through Pyramid Film Producers, 7166 Melrose Avenue, Hollywood 46, Calif. The 19-minute, 16 mm sound, color version costs $185. A 27-minute version includes a group training sequence.

"This Will Kill You," a 30-minute sound slide film in color, furnishes answers to the questions: How can electricity kill you? What can you do to avoid disaster? Suitable for teaching the general public how to handle this necessary but potentially deadly convenience. This film strip has received an Award of Merit from the National Committee on Films for Safety. Produced in cooperation with the Pacific Telephone Company by the Traid Corporation, P. O. Box 648, Encino, Calif.; $25 complete. May be available through local dealers.

Pergamon Press (122 East 55th Street, New York 22, N. Y.) announces the change of title and coverage of the International Journal of Air Pollution to "The International Journal of Air and Water Pollution." The Editorial Board and the Honorary Editorial Advisory Board have been extended to give effect to this increased coverage. Water pollution editor is Professor W. Wesley Eckenfelder, Jr., Civil Engineering Department, Manhattan College, New York 71, N. Y. Air pollution editor is James P. Lodge, Ph.D., Air Pollution Engineering Research, Robert A. Taft Sanitary Engineering Center, Cincinnati 26, Ohio.

"The Development of National Social Service Programs," a United Nations publication, treats with the scope and contents of such programs, the establishment of priorities in implementing

them, and the specific contributions of social services—particularly family and child welfare services—to programs relating to community development, urbanization, and the improvement of family levels of living. This 70-page report was prepared by an international group of eight experts appointed by the secretary-general of the United Nations. United Nations Publication Sales No. 60. IV. 1 Columbia University Press, 2960 Broadway, New York 27, N. Y.; 75 cents.

Volume 1, No. 1 of "Medical Tribune," a weekly newspaper, appeared in April. Published principally for the medical profession "at a time when rapid changes are occurring in almost every scientific and communicative direction," it hopes later "to increase its frequency of publication from weekly to daily." It will cover "meetings, developments in medical care and services, clinical investigation, medical education, etc.," and among other things report on subjects "of critical interest in the relationship of doctors to their community problems." To physicians not in private practice annual subscription rate is $5; to nonphysicians, $12.50. Medical Tribune, Inc., a subsidiary of Medical and Science Communications Development Corporation, is at 624 Madison Ave., New York 22, N. Y.

Volume 1, No. 1 of "Medical World News," a biweekly "newsmagazine of medicine," also appeared in April. Editor is Morris Fishbein, M.D. A letter from the publisher is titled "Why a new medical magazine?" One of the answers: "Only a new publication unusual in scope and purpose could possibly justify its entrance onto this already crowded stage." A look at several editions appears to justify the publisher's claim that it "is written in the fast paced, readable style of the modern general news magazine." In his words, too, "it lies flat (and) uses color generously throughout." Sampling titles: "Showdown on the Forand Bill," "Breakthrough on Cholesterol," "New Outlook on Cancer," and "Countdown on Blood Clots." Medical World Publishing Co., Inc., 1230 Avenue of the Americas, New York 20, N. Y.; $12.50 per year to nonprofessionals; $6 "to nonqualifying physicians or persons in allied professions."

The "Manual of Paper Food Service" contains case histories drawn from food service operations throughout the country showing how paper is being used to improve sanitation, simplify operations, and reduce costs in restaurants and institutions.

The manual's 13 chapters cover new ideas and sanitary practices for volume food service in hospitals, inplant feeding, restaurants and drive-ins, and schools.

Copies in bulk are free to associations, educational institutions, and health departments from the publisher, The Paper Cup and Container Institute, Inc., 250 Park Avenue, New York 17, N. Y. Individual copies are 25 cents to cover handling and mailing costs.

Journals Wanted

If there are any readers who have no further need of their March, 1960, Journals, the Association would be grateful if members would mail them to the Association at 1790 Broadway, New York 19, N. Y.

NEWS FROM THE FIELD

WHO NEWS

World Health Assembly Concluded

The admission of 11 new members or associate members and a voluntary increase of more than $400,000 in the working budget of the World Health Organization above that proposed by WHO Director-General Marcolino G. Candau, were among major developments of the Thirteenth World Health Assembly which completed its work in Geneva on May 21.

The additional appropriations, making the total budget $18,975,354, included a sum of $200,000 recommended by the United States "to finance additional assistance for new members and associate members and newly independent or emerging states." The allocation of $410,000 for the eradication of communicable diseases was the largest single item in the new budget estimation. (This is exclusive of the Malaria Eradication Special Account.)

The three-week session which opened on May 3 was attended by delegates from 96 of WHO's 101 member and associate member states. Six countries were elected to designate a representative to serve on WHO's 18-member Executive Board. They were Argentina, Ghana, Jordan, Republic of Korea, Thailand and the United Kingdom. The other members are: Brazil, France, Guatemala, Iran, Ireland, Luxembourg, Nepal, Peru, Sudan, USSR, Venezuela and Vietnam. Each member of the Executive Board has one vote.

Among the actions taken by the Assembly, the legislative body of WHO, were the following:

Malaria Eradication—Expressed satisfaction with the technical achievements of the campaign but stated that the financing of eradication operations through the Malaria Eradication Special Account on a voluntary basis was not possible without the full support of all the economically more privileged countries of the world.

Radiation Health—Defined the role of WHO in radiation health to include the protection of mankind from ionizing radiation hazards, whatever their source, and the development of medical uses of radiation and radioactive isotopes.

New Headquarters Building—Authorized the director-general to conclude an agreement with the Swiss Confederation and the Canton of Geneva and to arrange for contracts with the architect, builders, and suppliers, cost not to exceed 40 million Swiss francs.

14th World Health Assembly—Accepted the invitation of the Government of India to hold the 14th World Health Assembly in New Delhi in February, 1961. India will meet $250,000 of the extra costs involved.

World Health Year—Indefinitely postponed since WHO could not afford to divert funds and personnel from urgently needed health campaigns.

Intensified Program of Medical Research—Plan was endorsed, and the necessity for training qualified personnel essential to its execution was stressed.

The Assembly's technical discussions centered on "The Role of Immunization in Communicable Disease Control." It was concluded that smallpox vaccination still held first priority in the world, despite the varying epidemiological picture presented by different countries.

Local Health Services Studied

Six studies of local health service carried out under the direction of the governments of India, the Netherlands, Puerto Rico, Sweden, the Union of South Africa, and the United Kingdom are discussed in the first part of "Local Health Service," the title of the Third Report of WHO's Expert Committee on Public Health Administration. The committee concludes both that the study methods used are generally sound, and that in the development of health serv-

ices locally such studies should become a routine procedure in evaluating present and projected services. Annexes to the report outline the study methods.

The report includes discussions of: the need for decentralization of health services and for efficient local administration; various methods of organizing community effort in public health work; the need for closer rapport between general medical practice and local health service (and, consequently, for promoting realistic approaches to public health in undergraduate medical curricula); and the problems to local health services of increasing urbanization. The committee also dwells on the importance of adequate domiciliary health services, the role of general practitioners in health work, proper health records systems, specialist services at intermediate and national levels, and the role of community health reference centers where public health research can be conducted.

Guillermo Arbona, M.D., M.P.H., secretary of health, Commonwealth of Puerto Rico, and a Fellow of the APHA, chaired the committee.

WHO Technical Report Series, 1960, No. 194; 49 pages, 60 cents. From Columbia University Press, 2960 Broadway, New York 27, N. Y. Also in French and Spanish.

Medical Suppplies for Chile

Peru has sent earthquake-torn Chile 500,000 doses of dried smallpox vaccine, following a Chilean request for supplies made to the Pan American Sanitary Bureau, Washington. In response PASB approached the Peruvian government through its Zone Office in Lima, Peru. Peru donated the half million doses, and the vaccine was flown directly to Santiago de Chile as a gift.

In the United States PASB obtained emergency donations of penicillin and other antibiotics, tetanus antitoxin, gangrene antitoxin, typhoid vaccine, and other products which it shipped by air to Santiago. Contributors were major pharmaceutical houses in Philadelphia, Indianapolis, and New York.

A Variety of Documents

Columbia University Press, International Documents Service (2960 Broadway, New York 27, N. Y.), publishes an order form periodically for various "Publications on Health and Medicine" from the WHO. Many of the publications listed and described in it are special editions of WHO works and may not have been reviewed in the Journal columns. Readers may find that several of the items listed would be valuable additions to their libraries.

Laboratories That Can Fly

The USAF Aerospace Medical Center in Texas now has "two complete medical laboratories that can go anywhere in the world" to help Air Force physicians combat contagious diseases. They are attached to the Center's 3790th Epidemiological Laboratory at Lackland AFB, Tex. "Epi Lab," for short, is commanded by Colonel Thaddeus J. Domanski, of Jersey City, N. J.

The two laboratories are housed in large trailer trucks and can be air-lifted to distant points by USAF cargo craft.

Should an epidemic develop at an American air base in the continental United States, Alaska, Canada, Greenland, Puerto Rico, and the islands of the Atlantic Ocean the air base physician can call on Epi Lab asking for advice on methods of collecting laboratory samples, or send specimens to it for testing and a report. In critical situations Epi Lab sends out one of its mobile laboratories.

One of Epi Lab's early missions was to track down the hosts of bubonic plague with which two air force personnel had been infected while on a hunting trip. First Epi Lab established that the disease was the plague and not

tularemia, the first diagnosis. It then moved into the danger area and its technicians worked closely with the civilian health officials in collecting parasites and tissue specimens of rodents in the vicinity.

Name Changes for New Directions

The medical section of the National Tuberculosis Association changed its name in June from the American Trudeau Society to the American Thoracic Society to reflect "more accurately the broad interest of the membership in all diseases of the chest and respiratory tract, as well as tuberculosis." Organized in 1905 as the American Sanatorium Association, the ATS was reorganized in 1939 as the medical section of the NTA and named in honor of Dr. Trudeau, who established the sanatorium that bore his name at Saranac Lake, N. Y.

In May the National Foundation for Muscular Dystrophy took the name National Foundation for Neuromuscular Diseases. Commenting on the change of name, Charles A. Janeway, M.D., professor of pediatrics at Harvard Medical School and chairman of the foundation's medical advisory board, said that "Since the cause, treatment or cure of muscular dystrophy is still unknown, it is essential that research workers look at all aspects of this complex system and obtain the basic knowledge essential to an understanding of the diseases affecting it."

Maryland Promotes Immunization

The "Old Line State" Maryland has inaugurated a new line of health records, a combined birth registration notice-immunization record.

Maryland's official birth registration notice had remained unchanged for the past thirty years. The venerable document has now been reduced in size so as to fit into a woman's purse, and printed on more durable paper. In addition, provision has been made for a personal immunization record on the back.

According to the Monthly Bulletin (May) Maryland State Department of Health, the multiple advantages of this public health project include:

> Active and consistent promotion of parental responsibility—This will be fostered by systematically appealing to parents to: take their newborn infant to the family physician or pediatrician for health supervision and protective inoculations at appropriate intervals; bring along the birth-immunization record so the physician can record the pertinent date on it; and preserve the record for future use.
>
> Simplicity and uniformity of approach—"An absolute minimum of clerical entries are necessary, i.e., dates only for four of the disease preventing injections, and date and signature of the physician . . . for successful smallpox vaccination."
>
> Coordination with existing customs and practices—Among other things the record will meet legal requirements at school registration time for proof of birth and proof of successful smallpox vaccination.

After a one-year trial period in three counties, in which a high degree of acceptance was shown, use of the revised document was extended in April to include infants born in any of the 23 counties of the state.

Two Foundation Projects

Study of Voluntaryism in America

At the invitation of the Rockefeller Foundation, a 21-member committee made up of leaders in a variety of fields is making an exploratory study of the role and responsibilities of voluntary health and welfare agencies in the United States. The committee, which expects to complete its report by the end of 1960, will decide whether a later more comprehensive study of voluntary health and welfare agencies would be feasible and in the public interest.

The foundation pamphlet announcing

the study notes that voluntaryism in America faces three challenges:

"The increasing demands of an expanding population for additional services;

"The growth of the public's sense of social responsibility;

"The adjustments required by the expansion of government and its assumption of many functions formerly performed largely by voluntary agencies."

Study director is Robert H. Hamlin, M.D., M.P.H., associate professor of public health practice, Harvard University School of Public Health, who will be assisted by a professional advisory panel from the school faculty.

Community Organization for Aged

The Ford Foundation has appropriated $300,000 for a series of community organization experiments to improve or develop new programs for older persons. Grants will be made to eight communities. The pilot projects done in these communities will be coordinated and evaluated by the Florence Heller Graduate School for Advanced Studies in Social Welfare, Brandeis University, Waltham, Mass., under the general direction of Dean Charles I. Schottland, former commissioner of social security. The screening committee for applications is headed by Ollie Randall, vice-chairman, National Committee on the Aging; other members are Robert Morris, Ph.D., associate professor of community planning, Brandeis; Howard Gustafson, executive director, Health and Welfare Council of Indianapolis and Marion County, Ind., and special consultants as needed.

The pilot study groups will concentrate first on defining what can and what cannot be expected in terms of services for senior citizens from existing agencies. Support will continue for periods of two to four years to help local agencies review community resources, coordinate and adapt current programs, and develop criteria for new programs where needed.

Radiation in St. Louis County, Mo.

Local Health Department Research

The St. Louis County-St. Louis City Health Departments with financial support from the Public Health Service have begun to study the significance to man of radioactive materials in foods, water, and air. Centering around the transmission of radioactivity through commercial milk supplies, the study group will first conduct a survey of dairy farms in the St. Louis milk sheds, investigating water supplies, sources of animal food, climate, farming, animal feeding practices, and other variables possibly affecting types and levels of radioactivity in milk. Investigators will then study how to control the radioactive content of milk by modification in dairy farming practices. The PHS expects to apply these study technics to milk shed investigations it is planning for several other metropolitan areas at a later date.

The ultimate goal of the study is to obtain precise measurements of the amount and kinds of radioactivity taken in by people as well as the quantities retained within the body. Radioactivity of dietary, water, and air intake among large numbers of individuals will be analyzed. By measuring the radioactivity of body wastes, the amounts retained as total "body burden" will be determined.

C. Howe Eller, M.D., is commissioner of Health for St. Louis County and director of the study. J. Earl Smith, M.D., is director of health and hospitals for the city of St. Louis.

Community-Organized Study

The Greater St. Louis Citizens' Committee for Nuclear Information has been engaged in independent experiments in community education for over three years. This committee utilizes the services of volunteer speakers, usually young scientists in the field, to explain to citi-

zen groups in the area what they need to know about ionizing radiation.

The committee has also initiated what is said to be the world's first baby-tooth survey. St. Louis' dentists, schools, and other groups are cooperating to collect 50,000 primary teeth annually.

Parents send teeth to the committee, which in turn processes them for data on the child's residence, diet, and age which parents submit on a form. Teeth are then sent to the Washington University School of Dentistry where they are analyzed for strontium-90 content.

American Medical Association

E. Vincent Askey, M.D., of Los Angeles, became the new president of the AMA at the association's 109th annual meeting in Miami Beach (June 13-17). In his inaugural address Dr. Askey told the medical profession that in matters of health the physician must be his "community's leader, his community's voice, his community's conscience. . . . We are challenged to prove, once again, that medicine practiced in a free society is the most effective medicine."

Leonard W. Larson, M.D., pathologist, of Bismarck, N. D., was named president-elect. He had been chairman of AMA Board of Trustees since 1958. New chairman is Julian P. Price, M.D., of Florence, S. C. Dr. Larson is a member of the American Public Health Association.

Among its miscellaneous actions, the House of Delegates: reaffirmed support of the Blue Shield concept, agreed to sponsor a Second National Congress on Prepaid Health Insurance, approved the objectives of the AMA Commission on the Cost of Medical Care, and decided that the establishment of a home for aged and retired physicians is not warranted at this time.

AMA gave its 1960 Distinguished Service Award to Charles A. Doan, M.D., dean, Ohio State University College of Medicine, and director of the Health Center in Columbus. The Goldberger Award in Nutrition went to Richard Vilter, M.D., professor and director, Department of Internal Medicine, University of Cincinnati College of Medicine.

County Health Office in New Jersey

The Cape May (N. J.) County Board of Chosen Freeholders has created the position of county public health coordinator. This is a first in New Jersey's public health history. The licensed health officer appointed to fill the position will serve as health officer of each municipality in the county which designates him as such. Heretofore in the state, licensed health officers have been employed only by municipal boards of health or regional health commissions. The new county public health coordinator is Joseph Pack, M.P.H. County population is estimated at 45,000.

Laboratory Directors Elect

The Association of State and Territorial Public Health Laboratory Directors has elected the following officers to serve during the biennium 1960-1962:

President—Elmer L. Shaffer, Ph.D., director of laboratories, State Department of Health, Trenton, N. J.

Vice-President—Howard L. Bodily, Ph.D., chief, Division of Laboratories, State Department of Public Health, Berkeley, Calif.

Secretary-Treasurer—Melvin E. Koons, director, Division of Laboratories, State Department of Health, Grand Forks, N. D.

Man-Induced Hazards

Television

The American Academy of General Practice's Commission on Public Policy has warned that televised hypnosis demonstrations can trigger "serious emotional reactions." Closed circuit studies

conducted by the British Broadcasting Corporation have shown that viewers can be hypnotized while watching televised trance inductions, the commission reports. Such persons may require corrective psychotherapy as a result. Hypnosis, says AAGP, should never be allowed on TV for entertainment purposes.

There has been recent publicity, too, on the significant relationship between coccygodynia, or "television bottom," and people who glue themselves to their television sets. In one study on this purported "new syndrome" ten per cent of the cases reported required surgery to relieve pain in the spine, hips, and legs.

Smog

California has passed a law requiring the installation of smog suppressors on all automobiles. This action is of particular pertinence in Los Angeles and other congested areas which hope the law will help them banish smog within the next six years. By next July new cars must be antismog equipped. All motor-vehicle owners of California registry will have to install suppressors within three years. Devices must have been certified by the State Department of Public Health, and it must have certified at least two. For a county to exclude itself and its auto registrants from the law, the Board of Supervisors must establish at a public hearing that the county has no air pollution problem.

Incidentally, according to the Los Angeles County Air Pollution Control District, jet aircraft are not contributing to smog in the Los Angeles Basin. Nor, in its opinion, will the expected 475 per cent increase in jet traffic there be of any significance in the smog picture. The environmental hazards of testing for jet-smog are pointed up in an APCD study. Personnel had to work near areas where jet blast emerges at 700 miles per hour at a temperature of 700 degrees. Other hazards: being sucked into the engine and tremendous noise levels. (The report on all this is called "Air Pollution from Commercial Jet Aircraft in Los Angeles County." APCA is at 434 San Pedro Street, Los Angeles, 13.)

Two State Units Now One

A new Interdepartmental Health and Hospital Council in New York State has replaced two agencies eliminated by the Legislature: the Interdepartmental Health Resources Board and the Joint Hospital Survey and Planning Commission. Their administrative functions have been transferred to the State Departments of Health and of Mental Hygiene, with the former supplying staff services. Members of the new council are the state commissioners of health, social welfare, mental hygiene, education, and insurance.

The council is charged with coordinating informational exchanges between the five departments. It will also plan programs and conduct studies in the areas of rehabilitation, health services for the aging, alcoholism, narcotic addiction, mental retardation, emotional disturbances of children, hospital standards, and methods of financing hospital care.

In another newsworthy action, New York State amended its public health law, making it possible for county health officers to contract with commercial and nonprofit health insurance plans for reimbursement of home nursing care and allied services performed by health department personnel. This is a novel departure from norm in the field of medical economics. According to Governor Rockefeller, "The utilization of public health nursing staffs under such agreements should have a significant impact in reducing hospital care costs by permitting patients to be discharged

to their homes for care which might otherwise require prolonged hospital confinement."

Tenth Group Health Institute

The Group Health Association of America met in Columbus, Ohio, May 24-27, for its 10th annual institute. (GHAA was formerly Group Health Federation of America and American Labor Health Association.) Approximately 300 persons attended.

At its business meeting GHAA elected Caldwell B. Esselstyn, M.D., executive director of the Rip Van Winkle Clinic, Hudson, N. Y., as its president succeeding Dean A. Clark, M.D., director of the Massachusetts General Hospital, Boston. Other new officers are Lorin E. Kerr, M.D., assistant to the executive medical officer, United Mine Workers of America Welfare and Retirement Fund, Washington, D. C., second vice-president; and William H. Wandel, Nationwide Insurance Companies, Columbus, secretary-treasurer.

In a paper on "Scope and Cost of Medical Care in Prepaid Group Practice," E. Richard Weinerman, M.D., medical director, Herrick Memorial Hospital-Clinics, Berkeley, Calif., described small group health centers as offering the best prospects for the most economical and effective method of total medical care. However, he suggested that the cost of truly comprehensive health care, including drugs and other services not now included in many prepayment programs, can be met only by a wide base of community participation. Average family cost would not be prohibitive if employer and public funds were available to augment individual prepayment.

At a session on "Organizational Forms of Direct Service Group Medical Practice Plans," Leonard S. Rosenfeld, M.D., M.P.H., general director of the Metropolitan Hospital and Clinics, Detroit, Mich., predicted an increase in group practice of medicine and prepayment plans even though the movement "has been harassed by professional ostracism, by difficulties in obtaining hospital privileges and by restrictive legislation."

Milton I. Roemer, M.D., director of research at Cornell University's Sloan Institute for Hospital Administration, prophesied that trends in the United States toward group medical practice and prepaid health care will be expressed through new hospitals "if some boards of directors lack the courage to respond to public demand." He pointed out that it would be preferable to strengthen existing facilities rather than to multiply new ones under many different auspices. But many hospital boards of directors have kept group doctors from using hospital facilities. When this has been done without just cause . . . "the board of that hospital has abdicated its social responsibilities." Dr. Roemer told the session on "The Hospital's Relation to Prepaid Group Practice" that "If the board is sensitive to its public trust, if it focuses its attention on the needs of the patients, the hospital can be a powerful force for rationalizing health service."

In "Labor's Goal For Health Care" Emil Mazey, secretary-treasurer, United Automobile Workers, Detroit, said that the UAW will negotiate in 1961 for industry to pay the full cost of a comprehensive, prepaid medical care program for unionists in a plan known as the Community Health Association. Union members will have free choice of enrolling in this plan, or in Blue Cross-Blue Shield, or of declining any coverage. The program, to begin in Detroit this fall, will provide enrollees with full medical treatment and pay for doctor's fees and complete hospital costs.

"Controlling the Quality of Medical Care," "Group Medical Practice Plans and Rehabilitation," "The Role of Group Medical Practice in Medical Education," "Health Care of the Aged," and "Drugs

in Medical Care Plans" were also topics of sessions.

At the annual banquet former Surgeon General Thomas S. Parran, M.D., now president of the Avalon Foundation, gave his strong endorsement to the principle of prepayment and of the group practice of medicine. In his paper entitled "Group Health Objectives" he compared the present opposition facing prepayment and group practice to earlier opposition encountered by such innovations as water cholorination and milk pasteurization. A breakthrough of traditional "ruts" in medical services and medical education is needed. "We in the U.S.A. have been hobbled by our traditional patterns for nearly a half-century," he said. "Any prepayment scheme for medical care should be comprehensive in scope of service and in population coverage, should promote quality of care, should contain an economic incentive for prevention, and should pay directly for service rendered, not by way of cash reimbursement." He also made a point of the vital need for shortening "the cultural lag" between the acquisition of medical knowledge and its wide utilization.

A proceedings of the institute will be published. GHAA is located at 343 South Dearborn St., Chicago 4, Ill. Jerry Voorhis is executive-secretary.

Group to Standardize Culture Media

A national nonprofit corporation was chartered in Ohio in February for standardizing and making uniform the "identity, composition, performance, and labeling of the more important microbiological culture media, ingredients and reagents." This the new Microbiological Media Commission is doing "to assure constant growth-promoting qualities for microorganisms so that results obtained in biological control and in investigations in different laboratories will be consistently reliable."

Action was taken to set up the new commission after recent studies showed variations in the growth-promoting ability in the media produced by different manufacturers. Several national groups endorse the commission, including the American Dairy Science Association, Association of Official Agricultural Chemists, International Association of Milk and Food Sanitarians, and Society of American Bacteriologists.

APHA's Coordinating Committee on Laboratory Methods, and particularly the Subcommittee on Standard Methods for the Examination of Dairy Products, which has supported efforts at media-standardization for several years, has applauded the establishment of the commission. The first medium to be certified by MMC will be that for standard plate counts made in the examination of dairy products. The Eleventh Edition of Standard Methods for the Examination of Dairy Products will recommend use of certified media upon establishment of the certification procedure.

Trustees of the commission are:

M. Thomas Bartram, Ph.D., Food and Drug Administration, Department of HEW, Washington, D. C., chairman

Archie H. Robertson, Ph.D., retired, vice-chairman

Harold F. Clark, Robert A. Taft Sanitary Engineering Center, Cincinnati, Ohio, secretary

Glen L. Hays, American Can Company, Maywood, Ill., corresponding secretary

William J. Noble, Division of Laboratories, Louisiana State Board of Health, treasurer

Luther A. Black, Ph.D., chief, Milk and Food Sanitation, Environmental Health Center, Public Health Service, Cincinnati (Ohio)

Harry E. Goresline, Ph.D., associate scientific director, Food and Container Institute for the Armed Forces, Chicago (Ill.)

F. Wellington Gilcreas, professor of sanitary science, Department of Civil Engineering, University of Florida (Gainesville)

Joseph C. McCaffrey, chief, Bureau of Sanitary Bacteriology, Division of Laboratories, Illinois Department of Public Health (Chicago)

Wallace W. Sanderson, director, Division of

Laboratories and Research, New York State Department of Health (Albany)
Leander S. Stuart, U. S. Department of Agriculture, Washington, D. C.

Lasker Medical Journalism Awards

In April the Albert and Mary Lasker Foundation presented its 11th annual Medical Journalism Awards for articles and broadcasts. Population planning, emotional disturbance in children, and mental illness were the topics of the reports judged uniquely effective in informing the American people about major areas of public health concern during 1959. A national television broadcast and a unique series of medical columns received special awards.

Leroy E. Burney, M.D., Surgeon General, presented the awards—each for $2,500 and a Silver Winged Victory Statuette—at a luncheon in New York City, on April 28. The recipients were:

Magazine — Robert Coughlan, for his article "World Birth Control Challenge," published in Life Magazine, November 23, 1959.

Newspaper—Fern Marja, for a series on "Children in Trouble: The Problem of the Mentally Disturbed," published in the New York Post, August 24-30, 1959.

Broadcasting — KMOX-TV, St. Louis, Mo., for "The Changing Mind," a series of 13 programs on community progress in the treatment of the mentally ill, December 7-20, 1959, and a program depicting corneal transplant surgery, February 5, 1959.

Special Award — Broadcasting — CBS Reports, unit of CBS News, for a program on "The Population Explosion," examining the background and the international implications of the world's population growth, broadcast on November 11, 1959.

Special Award — Newspaper — Dr. Howard A. Rusk, for his editorial leadership in advancing medical research and public health programs in the United States through his Sunday columns published weekly in the New York Times since 1945.

At the luncheon, guest speaker, Sidney Farber, M.D., scientific director of the Children's Cancer Research Foundation, Boston, urged that Congress appropriate $300 million more than the Administration requested for medical research in the 1960-1961 budget. Dr. Farber, a consultant to a Senate advisory committee on medical research, believes that the budget request of $400 million for the National Institutes of Health is "woefully short of the mark." More than $200 million additional is needed immediately, he declared, and $80 million more should be made available for the construction of research and educational institutions.

Medical Group to Advise OVR

The Office of Vocational Rehabilitation has appointed a medical advisory committee chaired by Howard A. Rusk, M.D., New York City. The group's assigned purpose is to assist OVR in planning of long-range medical programs and to interpret OVR objectives to professional groups whose cooperation would be helpful. Other members of the committee are Herman E. Hilleboe, M.D., M.P.H., commissioner of health, New York State Department of Health; Dean W. Roberts, M.D., executive director, National Society for Crippled Children and Adults, Chicago, Ill.; David Wade, M.D., Austin, Tex.; Verne T. Inman, M.D., San Francisco; Warren F. Draper, M.D., executive medical officer, UMWA Welfare and Retirement Fund, Washington, D. C.; Leonard W. Larson, M.D., pathologist, Quain and Ramstad Clinic, Bismarck, N. D.; Edward W. Lowman, M.D., New York, N. Y.; Theodore Klumpp, M.D., New York, N. Y.; Sidney Farber, M.D., director of research, Children's Cancer Research Foundation, Boston, Mass.; and Richard E. Hoover, M.D., Baltimore, Md.

PERSONALS

MAJOR GENERAL JOSEPH L. BERNIER, USA (DC), has been appointed Assistant Surgeon General of the Army and chief of the Dental Corps, succeeding MAJOR GENERAL JAMES W. EPPERLY, USA (DC), retired.

RALPH H. BOATMAN, JR., Ph.D., M.P.H.,* formerly director of health education, is now director, Community Health Services Department, The Tuberculosis Institute of Chicago and Cook County, (Ill.). HARLAN L. STRICKLETT, M.P.H.,† succeeds him as health education director.

FRANK A. BUTRICO,* chief, Office of Engineering Resources, Division of Engineering Services, PHS, has been assigned to full-time duty as executive secretary of PHS's National Conference on Water Pollution, to be held in Washington, D. C., December 12-14, 1960.

ELAINE FINERAN, formerly assistant director, public health nursing, San Bernardino County (Calif.) Health Department, is now director, public health nursing, Fresno (Calif.) Health Department.

ALFRED M. FREEDMAN, M.D.,† formerly associate professor of psychiatry, State University of New York, Downstate Medical Center, is now professor and chairman, Department of Psychiatry, New York Medical College, Flower and Fifth Avenue Hospitals.

JOHN HOMER HAMILTON, M.D.,* assistant state health director, North Carolina State Board of Health since 1931, has retired.

ROBERT N. HOYT, Dr.P.H.,* V.D. coordinator and educator, Cleveland (Ohio) Division of Health, has retired after 22 years of service during which he also served as secretary, Joint Social Hygiene Committee of the Cleveland Academy of Medicine and the Cleveland Health Council. He is at the Uplands Retirement Project, Pleasant Hill, Tenn.

THEODORE H. INGALLS, M.D.,* professor of preventive medicine and epidemiology, University of Pennsylvania, is now director of the university's Henry Phipps Institute, succeeding JULIUS L. WILSON, M.D.,† now director of medical education, American Thoracic Society, New York City.

ROBERTA L. JACOBS,† formerly director, Parmenter Health Center, Wayland, Mass., is now executive director, Greater Boston Diabetes Society.

RT. REV. MSGR. A. W. JESS of Camden, N. J., was elected president, Catholic Hospital Association of the United States and Canada, at the association's 45th annual convention in Milwaukee, Wis.

EDWARD KUPKA, M.D.,* chief, Bureau of Tuberculosis Control, California State Department of Public Health, is on a two-year leave of absence to assist the WHO, as tuberculosis assistant in South and Central American control projects.

DOUGLAS H. K. LEE, M.D., formerly head of research, Quartermaster Corps, Department of the Army, is now chief, Research Headquarters, Occupational Health Program, Bureau of State Services, PHS, Cincinnati, Ohio.

LOUISE MCMANUS, R.N.,† former public health nursing advisor, Nursing Section, Massachusetts Department of Public Health, is now director, Parmenter Health Center, Wayland, Mass.

COMMANDER JACK W. MILLAR, MC, USN,† former commanding officer, U. S. Naval Medical Research Unit No. 1, University of California, Berkeley, is now director of preventive medicine, Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

JERRY T. MISER, M.D., formerly head, Medical and Surgery Branches, Professional Division, U. S. Navy Bureau of Medicine and Surgery, Washington, D. C., is now chief, San Diego Alcoholic Rehabilitation Clinic, San Diego (Calif.) Department of Public Health.

HOWARD W. MITCHELL, M.D., M.P.H.,* formerly acting director, School of Public Health and chairman, Department of Public Health Practices, American University of Beirut, Lebanon, is now chief, Bureau of Occupational Health, California State Department of Public Health.

LT. COLONEL WILLIAM D. NETTLES, USAF (VC), staff veterinarian, Headquarters, 17th Air Force (USAFE), Ramstein, Germany, has been awarded the Army Commendation Medal for his work at the Quartermaster Food and Container Institute for the Armed Forces in developing liquid, semisolid, and stick-type foods for feeding in high altitude flights.

BLUCHER A. POOLE,* director, Bureau of Environmental Sanitation, State Board of Health, Indianapolis, Ind., has been appointed to the PHS's National Advisory Committee on Radiation, Washington, D. C.

JOSEPH E. PREIZLER, M.D., is now director, Division of Tuberculosis Control and director, Bureau of Communicable Diseases, Preventable Diseases Section, Wisconsin State Board of Health, where he has served as epidemiologist for two years.

OLLIE A. RANDALL,† consultant, Program in Aging, Ford Foundation, and vice-chairman, National Committee on the Aging, New York City, received the annual Senior 65ers' Award from the retired members of District 65, Retail, Wholesale and Department Store Union, AFL-CIO, in recognition

* Fellow.
† Member.

of her outstanding contributions to the welfare of the aged.

REGINALD ROBINSON, Ph.D.,† research sociologist, formerly with the Joint Commission on Mental Illness and Health, is now executive director, Massachusetts Committee on Children and Youth, a citizens' committee appointed by the governor.

VICTOR B. ROSSING, JR., formerly with the Racine (Wis.) Department of Health, is now director of public health, nonmedical, Oshkosh (Wis.) Department of Health, succeeding J. E. WASHBURN, retired.

ARDYCE RUNDQUIST, M.P.H.,† former nutritionist, Allegheny County Health Department, Pittsburgh, Pa., is now dietary consultant, Michigan Department of Health, Lansing.

ROZELLA M. SCHLOTFELD, Ed.D., formerly associate dean and professor, Wayne State University College of Nursing, Detroit, Mich., is now dean, Western Reserve University's Frances Payne Bolton School of Nursing, Cleveland, Ohio, succeeding ELIZABETH K. PORTER, retired.

HILLA SHERIFF, M.D.,* director, Maternal and Child Health Division, South Carolina State Board of Health, is the new president of the Association of State Maternal and Child Health and Crippled Children's Directors.

SHELDON S. STEINBERG, Ed.D.,† formerly assistant professor, Department of Health Education, Southern Illinois University, Carbondale, is now director of public education, Illinois Division, American Cancer Society, Chicago.

GEORGE M. WARNER, M.D.,† formerly home care executive and deputy chief, Division of Social Medicine, Montefiore Hospital, New York City, has been appointed director, Bureau of Chronic Disease and Geriatrics, New York State Department of Health.

DOROTHY WILSON, Ed.D., R.N.,* executive director, Visiting Nurse Association, New Haven, Conn., will become director of the Philadelphia (Pa.) Community Nursing Services in the fall.

DEATHS

DAVID R. BARCLOW, M.D., health officer, Trinidad, Colo., on June 17.

JAMES B. CARROLL, D.D.S., M.P.H.† director of Dental Public Health, Fulton County (Ga.) Health Department (Dental Health Section).

SAIDIE ORR DUNBAR,† executive secretary of the Oregon Tuberculosis and Health Association from 1915 until 1951 when she resigned to become consultant to the Board of Directors of the Oregon Tuberculosis and Health Association, on May 12 at the age of 79 (Public Health Education Section).

ERNEST G. EGGERT,* public health engineer, Regional Office, Georgia State Department of Health, Macon, in June (Engineering and Sanitation Section).

JOHN E. ELMENDORF, JR., M.D.,* of Southern Pines, N. C. (Epidemiology Section).

WENDELIN G. LUCKNER, M.D.,† health officer, Town of Union, Conn., on June 23, 1959 (Health Officers Section).

ELLIOTT S. A. ROBINSON,* former director of the Division of Biologic Laboratories, Massachusetts Department of Public Health, on May 5 in Haverhill, N. H., at the age of 65 (Laboratory Section).

CONSTANTIN P. YAGLOU,* professor of industrial hygiene, Harvard School of Public Health, on June 3 at the age of 63 (Occupational Health Section).

CONFERENCES AND DATES

American Public Health Association, Eighty-Ninth Annual Meeting, Detroit, Mich., November 13-17, 1961.

Eighty-Eighth Annual Meeting, San Francisco, Calif., October 31-November 4, and Related Organizations, including:

American Association of Medical Clinics
American Association of Public Health Physicians
American Association for Vital Records and Public Health Statistics
American College of Preventive Medicine
American Industrial Hygiene Association
American National Council for Health Education of the Public
American School Health Association
American Society of Professional Biologists
Association of Business Management in Public Health
Association of Reserve Officers of the USPHS
Association of Schools of Public Health
Association of State and Territorial Public Health Nursing Directors
Association of Teachers of Preventive Medicine
California School Health Association
Cleveland Health Museum National Advisory Council
Commissioned Officers Association of the USPHS

* Fellow.
† Member.

Committee on Medical Care Teaching, ATPM
Conference for Health Council Work
Conference of Health Economists
Conference of Municipal Public Health Engineers
Conference of Public Health Training
Conference of Public Health Veterinarians
Conference of State and Provincial Health Authorities of North America
Conference of State Sanitary Engineers
Conference of State and Territorial Directors of Public Health Education
Division of International Health, PHS
Group Health Association of America
Industrial Medical Association
International Cooperation Administration, Office of Public Health
Mental Health, Public Health and Psychiatric Nurses
Military Government-Civil Affairs Public Health Society
National Association for Retarded Children
National Association of Sanitarians
National Citizens Committee for the World Health Organization
National Rehabilitation Association
National Society for the Prevention of Blindness
Public Health Cancer Association of America
Social Workers in Health and Welfare Programs
Society of Public Health Educators

Alumni Groups:

California Public Health Alumni Association, University of
Columbia University School of Public Health and Administrative Medicine Alumni
Delta Omega Society
Harvard Public Health Alumni Association
Johns Hopkins University Alumni
Michigan Alumni, University of
Minnesota, University of
North Carolina School of Public Health Alumni, University of
Pittsburgh Alumni, University of
Toronto School of Hygiene Alumni, University of
Tulane University Alumni
Yale University Alumni

State and Regional Public Health Meetings—August, September, and October:

Florida Public Health Association. Carillon Hotel, Miami Beach. October 13-15
Hawaii Public Health Association (Pan Pacific Health Conference). Hawaiian Village Hotel, Honolulu. November 7-8.
Maryland Public Health Association. Emerson Hotel, Baltimore. October 7.
Minnesota Public Health Association. Lowry Hotel, St. Paul. September 29-30.
New Jersey Public Health Association. October.
Nebraska Public Health Association. Fontenelle Hotel, Omaha. September 28-30.
North Carolina Public Health Association. Washington Duke Hotel, Durham. September 7-9.
Oregon Public Health Association. Marion Hotel, Salem. September 29-October 1.
Pennsylvania Public Health Association. University Park Hotel, University Park. August 14-18.
South Dakota Public Health Association. Sheraton Johnson Hotel, Rapid City, S. D. September 14-16.
Tennessee Public Health Association. Maxwell House Hotel, Nashville. October 5-7.
Washington State Public Health Association. Spokane. October 2-4.

Meetings of Other Organizations:

American Academy of Pediatrics. Palmer House, Chicago, Ill. October 17-20.
American Association of Blood Banks. San Francisco, Calif. August 21-26.
American Association of Medical Record Librarians. Olympia Hotel, Seattle, Wash. October 10-13.
American College of Surgeons. Annual Clinical Congress. San Francisco, Calif. October 10-14.
American Dental Association, Los Angeles, Calif. October 17-20.
American Dietetic Association. Cleveland, Ohio. October 18-21.
American Heart Association. Jefferson Hotel, St. Louis, Mo. October 21-25.
American Hospital Association. San Francisco, Calif. August 29-September 1.
American Institute of Oral Biology. Palm Springs, Calif. October 8-12.
American Pharmaceutical Association. Shoreham Hotel, Washington, D. C. Week of August 14.
American Psychiatric Association. Salt Lake City, Utah. October 17-20.
Association of American Medical Colleges. Diplomat Hotel, Hollywood Beach, Fla. October 31-November 2.

Association of State and Territorial Health Officers. San Francisco, Calif. October 27-29 (tentative).

College of American Pathologists and the American Society of Clinical Pathologists. Palmer House, Chicago, Ill. September 26-30.

Federation of Sewage and Industrial Wastes Associations. Sheraton Hotel, Philadelphia, Pa. October 2-6.

International Association of Gerontology (Fifth). San Francisco, Calif. August 7-12.

International Association of Milk and Food Sanitarians. Hotel Morrison, Chicago, Ill. October 26-29.

International Congress of Histochemistry and Cytochemistry (First). Paris, France. August 28-September 1.

International Congress for Internal Medicine. Basel, Switzerland. August 24-27.

International Convention of Nutrition and Vital Substances (Sixth). Baden-Baden, Germany. October 5-9.

International Society for the Welfare of Cripples. Waldorf Astoria Hotel, New York, N. Y. August 28-September 1.

Muscular Dystrophy Associations of America. New York, N. Y. October 13.

National Association of Housing and Redevelopment Officials. Sheraton Hotel, Washington, D. C. October 9-12.

National Cancer Conference (Fourth). Minneapolis, Minn. September 13-15.

National Committee on the Aging. Belmont-Plaza Hotel, New York, N. Y. October 17-19.

National Federation of Licensed Practical Nurses. Cole Hotel, Albuquerque, New Mexico. October 10-14.

National Medical Association. Hotel Penn-Sheraton. Pittsburgh, Pa. August 8-11.

National Recreation Association. Washington, D. C. September 26-30.

National Safety Council. Conrad Hilton Hotel, Chicago, Ill. October 17-21.

National Society for Crippled Children and Adults with ISWC Eighth World Congress. Waldorf Astoria Hotel, New York, N. Y. August 28-September 2.

North American Association of Alcoholism Programs. Banff School of Fine Arts, Banff, Alberta, Canada.

United States Civil Defense Council Conference (Ninth). Medical-Health Section. Leamington Hotel, Minneapolis, Minn. September 21-22.

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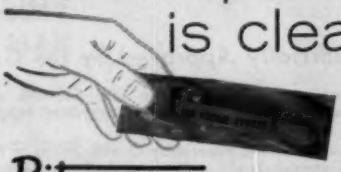

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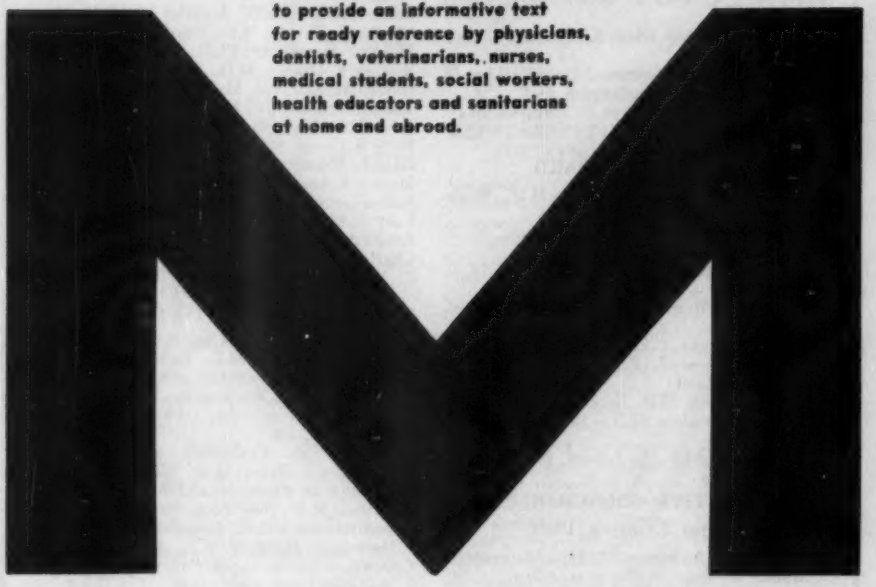

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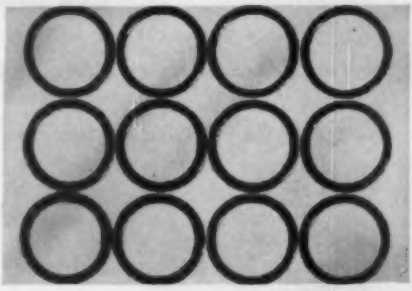

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